

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.



U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

JUL 16 1964

CURRENT SERIAL RECORDS

WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE
and
OREGON STATE UNIVERSITY
and
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above
in cooperation with other Federal, State and private organizations.

||||||| AS OF |||||
JAN. 1, 1964

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES _____	MONTHLY (FEB.-MAY) _____	PORTLAND, OREGON _____	ALL COOPERATORS
BASIC DATA SUMMARY _____	OCTOBER 1 _____	PORTLAND, OREGON _____	ALL COOPERATORS
STATES			
ALASKA _____	MONTHLY (MAR.-MAY) _____	PALMER, ALASKA _____	ALASKA S.C.D.
ARIZONA _____	SEMI-MONTHLY _____ (JAN.15 - APR.1)	PHOENIX, ARIZONA _____	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO _____	MONTHLY (FEB.-MAY) _____	FORT COLLINS, COLORADO _____	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO _____	MONTHLY (JAN.-JUNE) _____	BOISE, IDAHO _____	IDAHO STATE RECLAMATION ENGINEER
MONTANA _____	MONTHLY (JAN.-JUNE) _____	BOZEMAN, MONTANA _____	MONT. AGR. EXP. STATION
NEVADA _____	MONTHLY (JAN.-MAY) _____	RENO, NEVADA _____	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON _____	MONTHLY (JAN.-JUNE) _____	PORTLAND, OREGON _____	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH _____	MONTHLY (JAN.-JUNE) _____	SALT LAKE CITY, UTAH _____	UTAH STATE ENGINEER
WASHINGTON _____	MONTHLY (FEB.-JUNE) _____	SPOKANE, WASHINGTON _____	WN. STATE DEPT. OF CONSERVATION
WYOMING _____	MONTHLY (FEB.-JUNE) _____	CASPER, WYOMING _____	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA _____	MONTHLY (FEB.-JUNE) _____	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA _____	MONTHLY (FEB.-MAY) _____	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

234602

WATER SUPPLY OUTLOOK
and
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS
for
OREGON

ISSUED
JANUARY 8, 1964

Report prepared by

W. T. FROST, Snow Survey Supervisor

and

BOB L. WHALEY, Assistant Snow Survey Supervisor

SOIL CONSERVATION SERVICE
209 S.W. 5TH AVE., PORTLAND 4, OREGON

Issued by

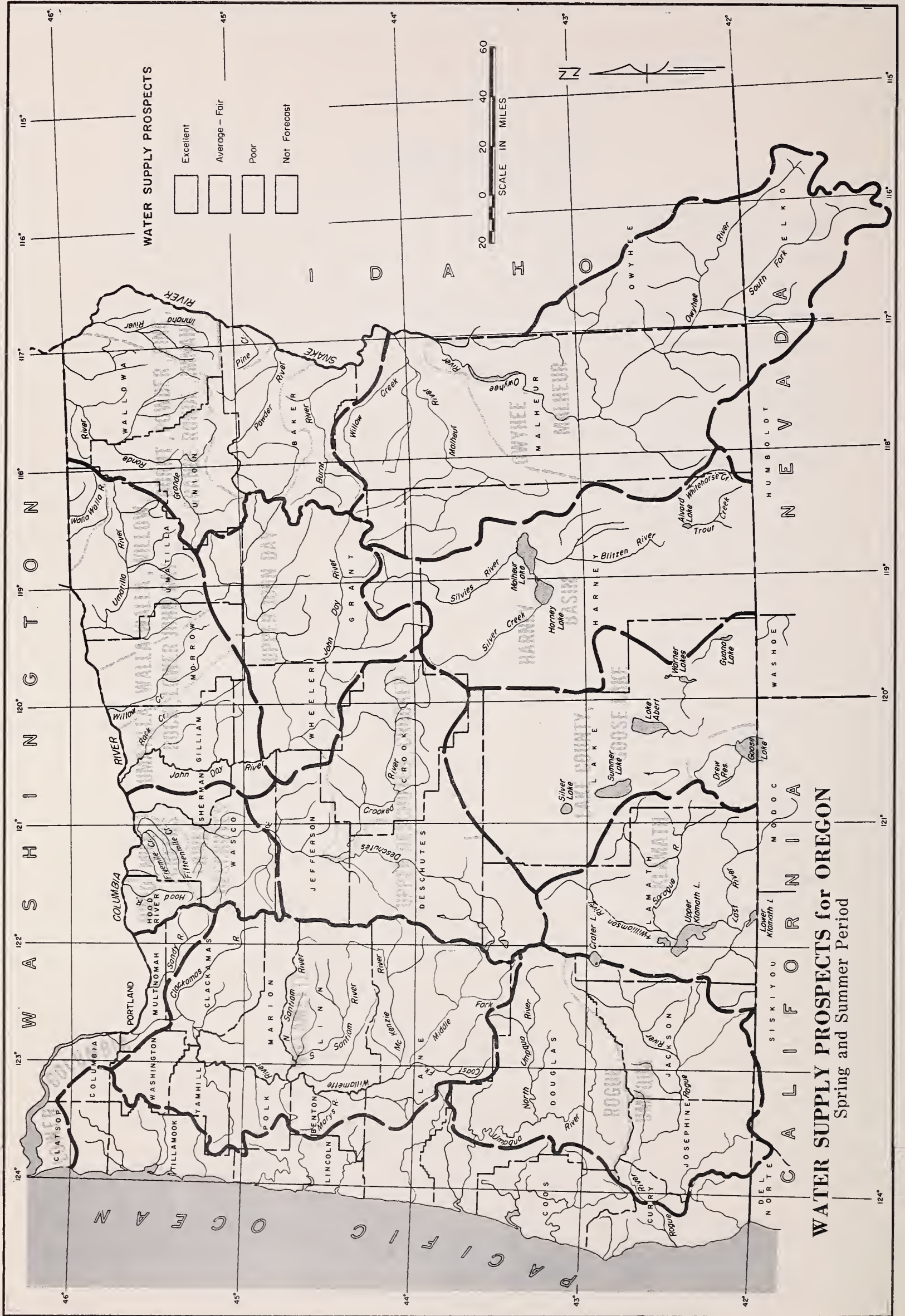
THOMAS P. HELSETH
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE

F. EARL PRICE
DIRECTOR
OREGON AGRICULTURAL
EXPERIMENT STATION

CHRIS L. WHEELER
STATE ENGINEER
STATE OF OREGON

TABLE OF CONTENTS

	PAGE
WATER SUPPLY PROSPECTS FOR OREGON.....(MAP).....	FACING PAGE 1
WATER SUPPLY OUTLOOK FOR OREGON.....	1
STORAGE STATUS OF OREGON RESERVOIRS.....(MAP).....	3
SNOW WATER ACCUMULATION IN OREGON (STATEWIDE) ..(GRAPH).....	4
SNOW WATER ACCUMULATION IN OREGON (AREAS).....(GRAPHS).....	5
SNOW WATER ACCUMULATION IN OREGON (AREAS).....(GRAPHS).....	6
MOUNTAIN SOIL MOISTURE IN OREGON.....(MAP).....	7
VALLEY PRECIPITATION IN OREGON.....(MAP AND TABLE).....	8
CURRENT OREGON STREAMFLOW.....(GRAPH).....	9
DETAILED WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS	
OWYHEE, MALHEUR.....	AREA 1
BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA.....	AREA 2
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY.....	AREA 3
UPPER JOHN DAY.....	AREA 4
UPPER DESCHUTES, CROOKED.....	AREA 5
HOOD, MILE CREEKS, LOWER DESCHUTES.....	AREA 6
LOWER COLUMBIA.....	AREA 7
WILLAMETTE.....	AREA 8
ROGUE, UMPQUA.....	AREA 9
KLAMATH.....	AREA 10
LAKE COUNTY, GOOSE LAKE.....	AREA 11
HARNEY BASIN.....	AREA 12
MAP AND INDEX OF OREGON SNOW COURSES.....(MAP)	
LIST OF COOPERATORS.....	INSIDE BACK COVER



WATER SUPPLY OUTLOOK for OREGON

JANUARY 1, 1964

The outlook for Oregon's irrigation water supplies in 1964 is fair to good with lands served from reservoir supplies having the most favorable outlook. The mountain snowpack began to accumulate at an early date, but the rate of accumulation fell off so that snow now varies on January 1 from a low of 26 percent on the Willamette to a high of 81 percent on the Burnt River. Reservoir water supplies are mostly satisfactory and the soils in mountain watersheds are relatively well recharged.

SNOW COVER - Balmy winter weather has resulted in below average snow accumulation up to January 1. The western half of the state has less than half the usual snow while only the northeast corner has amounts of 70 percent or greater. Early January storms have brought a much needed heavy increase in snowpack.

SOIL MOISTURE - Watershed soils under the snowpack are not quite as favorably recharged as last year, but will soak up a relatively smaller amount of moisture than usual as spring runoff begins.

RESERVOIR STORAGE - Irrigation water stored in 24 reservoirs totals 87 percent of the 15 year average (1943-57) and is generally equal to last year at this date. In most cases, storage is accumulating at satisfactory rates. However, the inflow to McKay Reservoir in Umatilla County has been extremely poor and much above average runoff will be needed to provide satisfactory water supplies for lands served from this source.

STREAMFLOW - Flow of major streams* in the state from October 1 to date is below average and varies from a low of 27 percent on the Umatilla River to a high of 96 percent on Klamath River. Other low flows have been 44 percent on the Middle Fork Willamette, 52 percent on the John Day, 60 percent on the Umpqua, and 66 percent on Hood River. Higher flows include 74 percent for the Rogue, 81 percent for the Owyhee and 90 percent for the Deschutes.

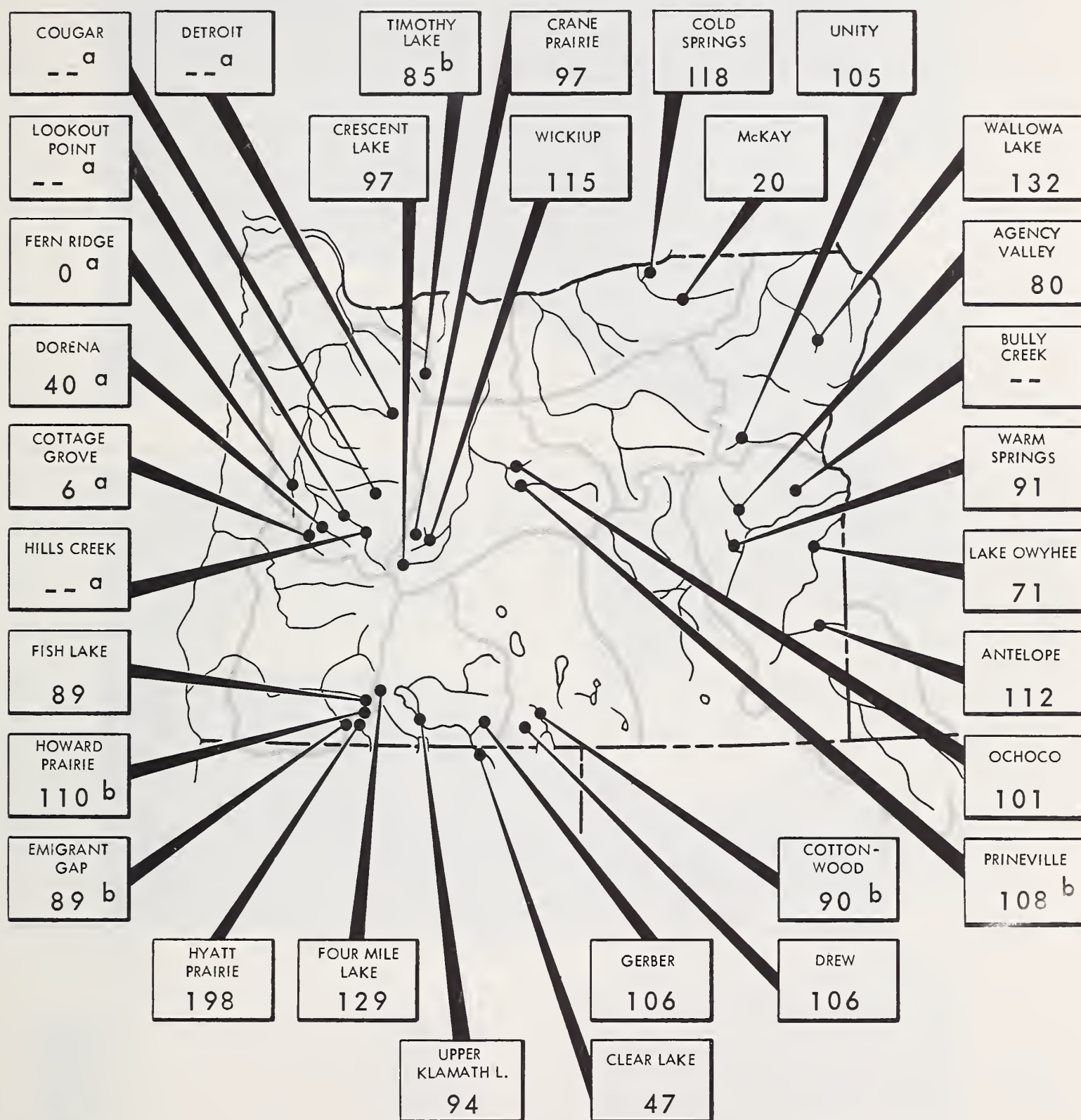
Several winter months remain in which snow cover should continue to accumulate. Conditions will be improved if snow increases at above average rates.

* Preliminary data from U. S. Geological Survey, Portland; U. S. Bureau of Reclamation, Klamath Falls and Pacific Power and Light Co., Medford, Oregon.



STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

JANUARY 1, 1964



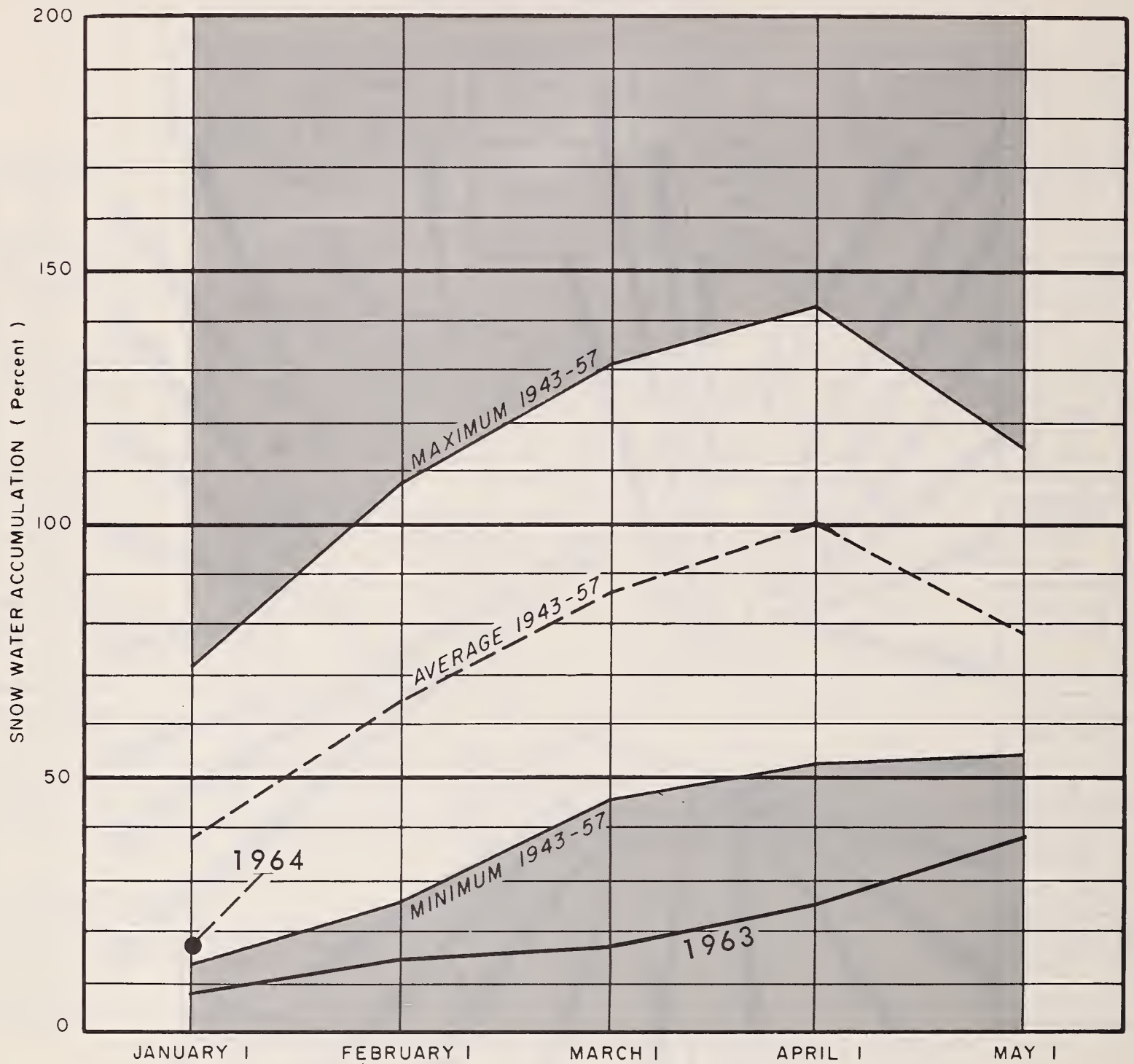
(a) Multiple purpose reservoir - space reserved primarily for flood runoff.

(b) Short record - compared with last year on this date.

N.R. - No report.

SNOW WATER ACCUMULATION in OREGON

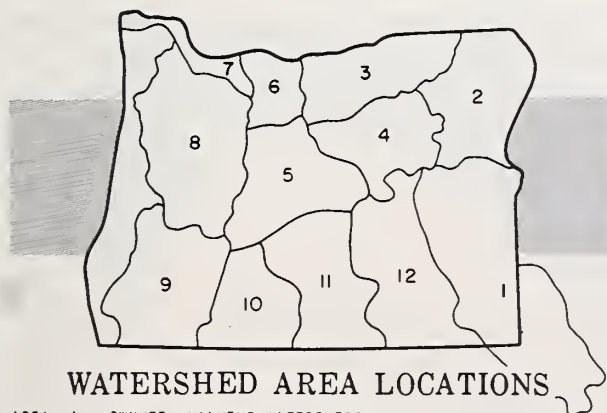
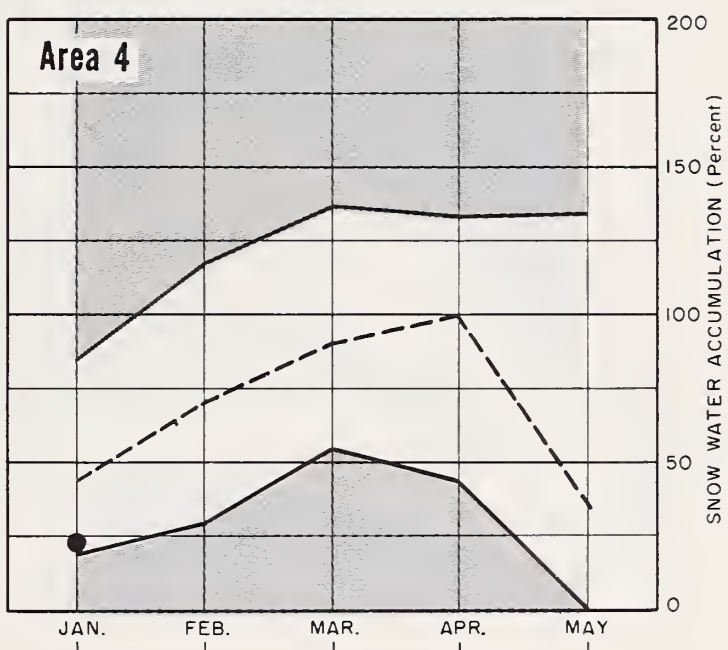
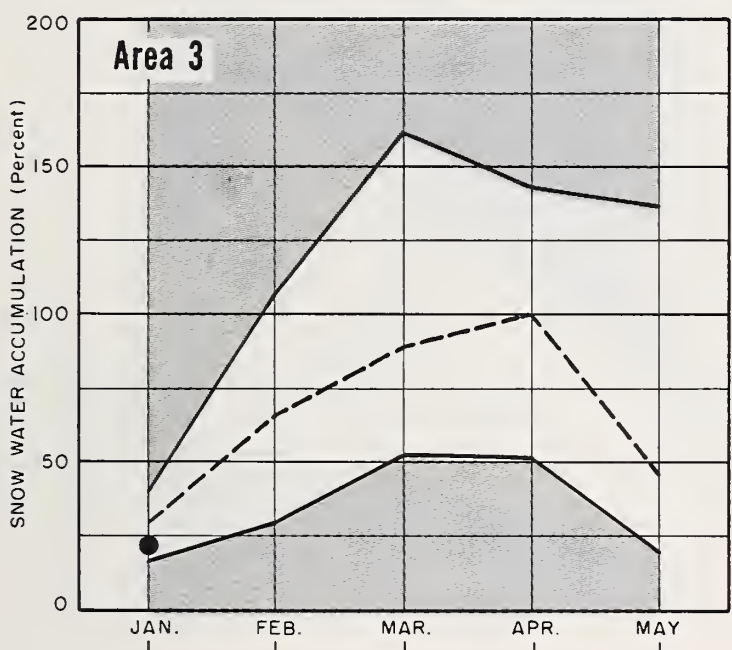
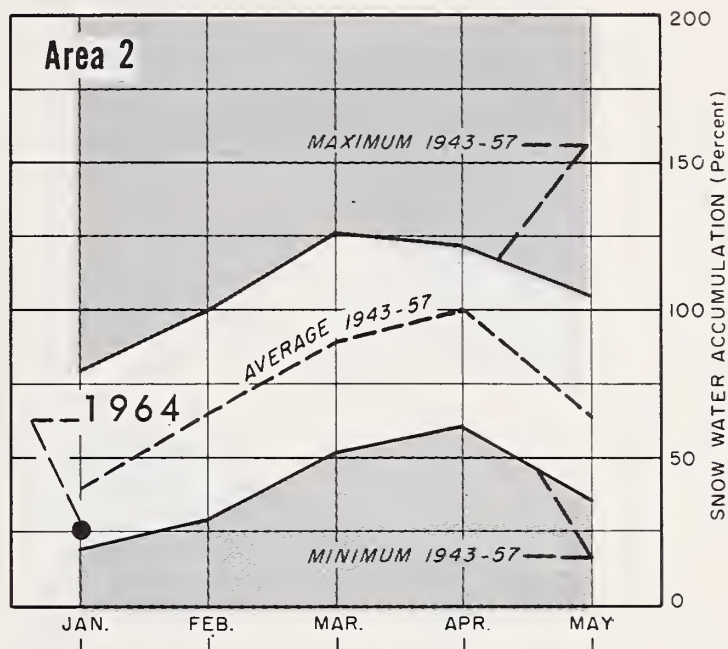
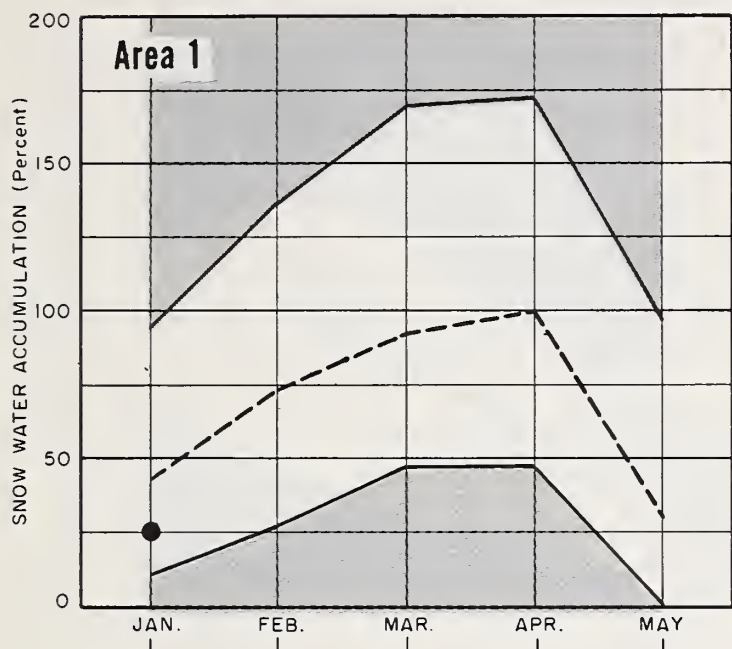
JANUARY 1, 1964



SNOW WATER ACCUMULATION in OREGON

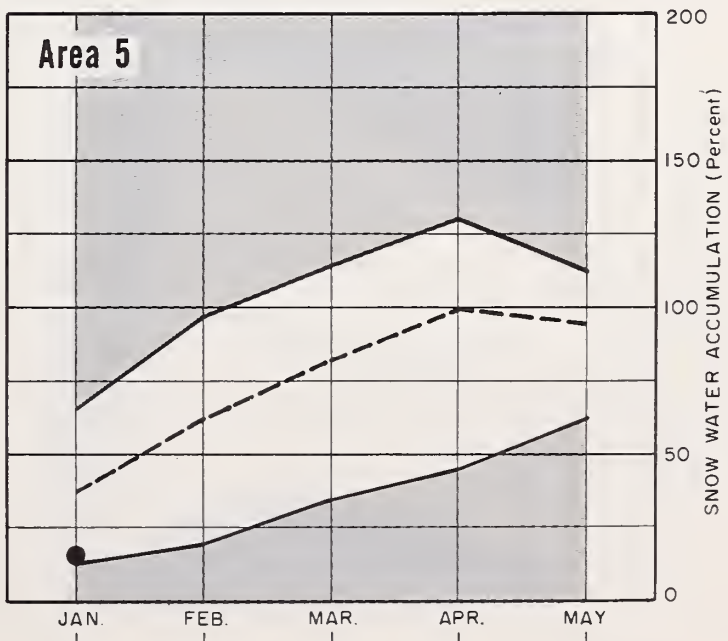
(Percent of average maximum accumulation)

JANUARY 1, 1964



WATERSHED AREA LOCATIONS

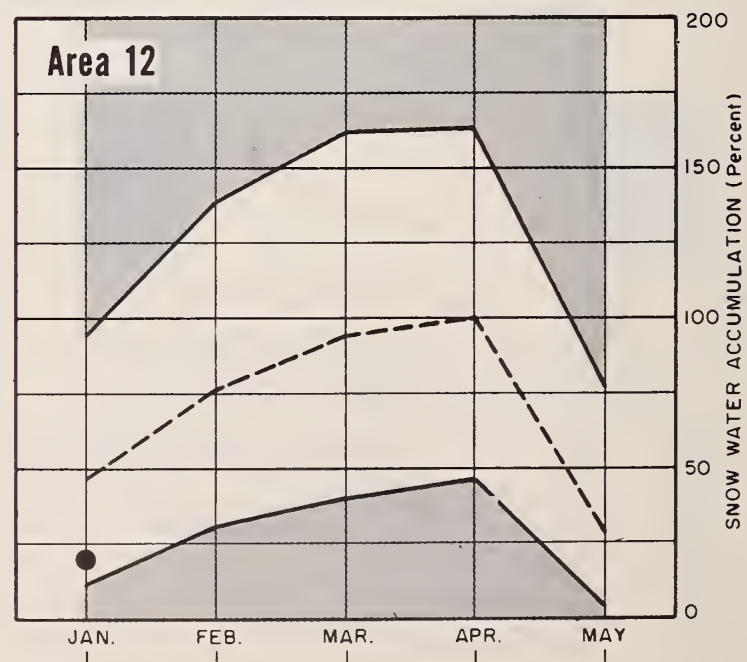
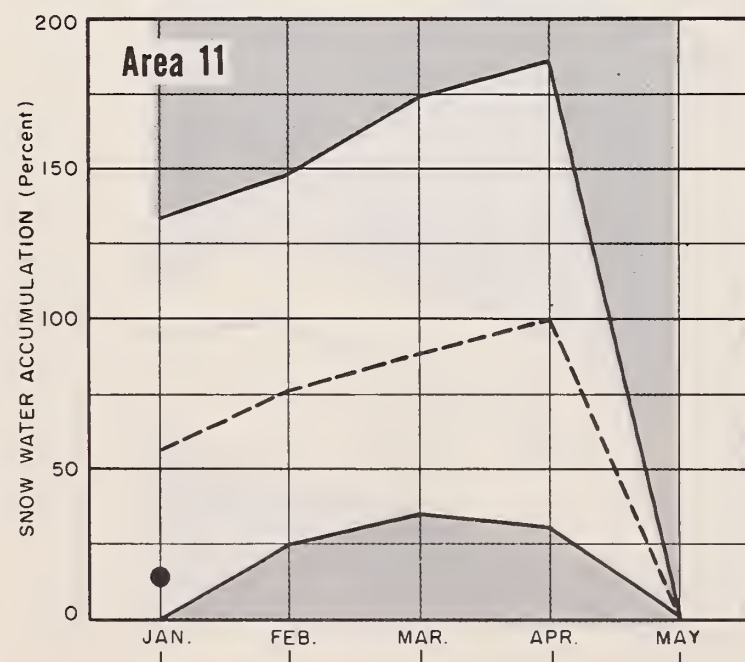
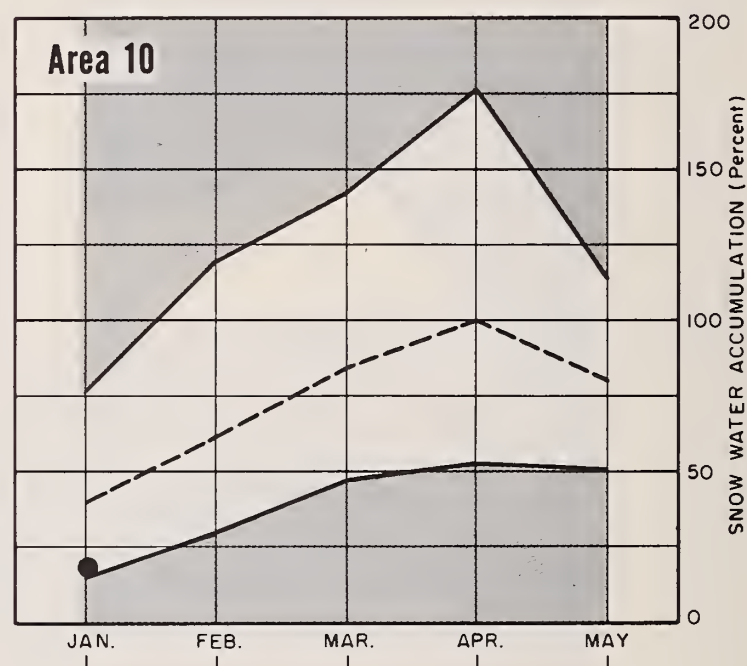
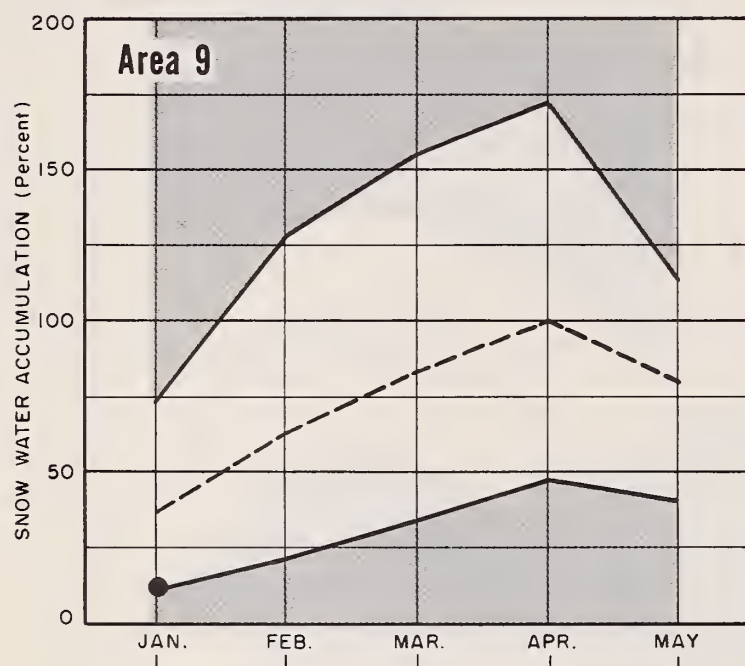
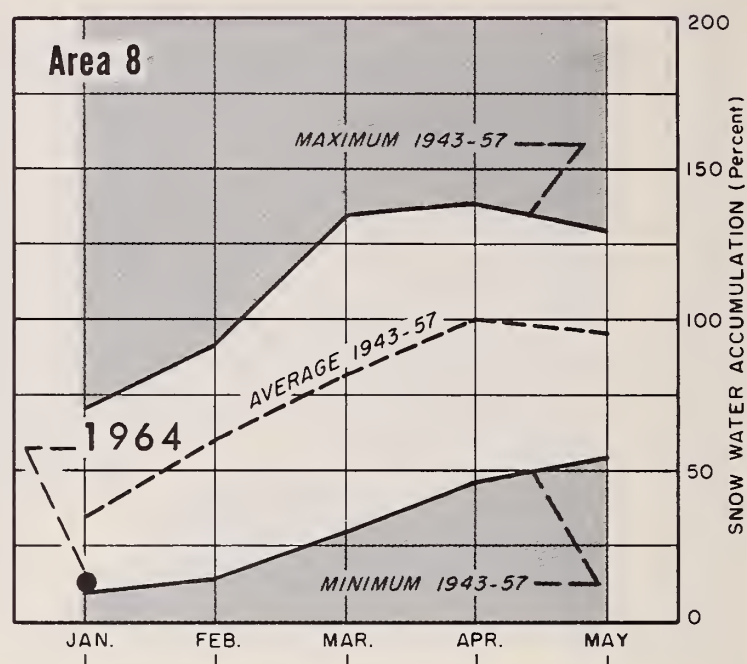
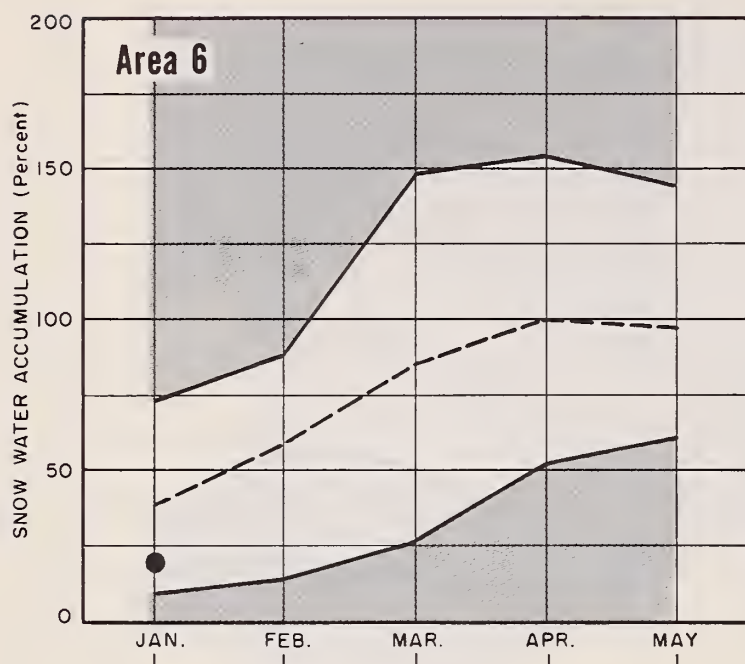
- AREA 1 - OWYHEE, MALHEUR WATERSHEDS
- AREA 2 - BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS
- AREA 3 - UMATILLA, WALLA WALLA, WILLDOV, ROCK, LOWER JOHN DAY WATERSHEDS
- AREA 4 - UPPER JOHN DAY WATERSHEDS
- AREA 5 - UPPER DESCHUTES, CROOKED, WATERSHEDS
- AREA 6 - HODD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS
- AREA 7 - LOWER COLUMBIA WATERSHEDS
- AREA 8 - WILLAMETTE WATERSHEDS
- AREA 9 - ROGUE, UMPQUA WATERSHEDS
- AREA 10 - KLAMATH WATERSHEDS
- AREA 11 - LAKE COUNTY, GODSE LAKE WATERSHEDS
- AREA 12 - HARNEY BASIN WATERSHEDS



SNOW WATER ACCUMULATION in OREGON

(Percent of average maximum accumulation)

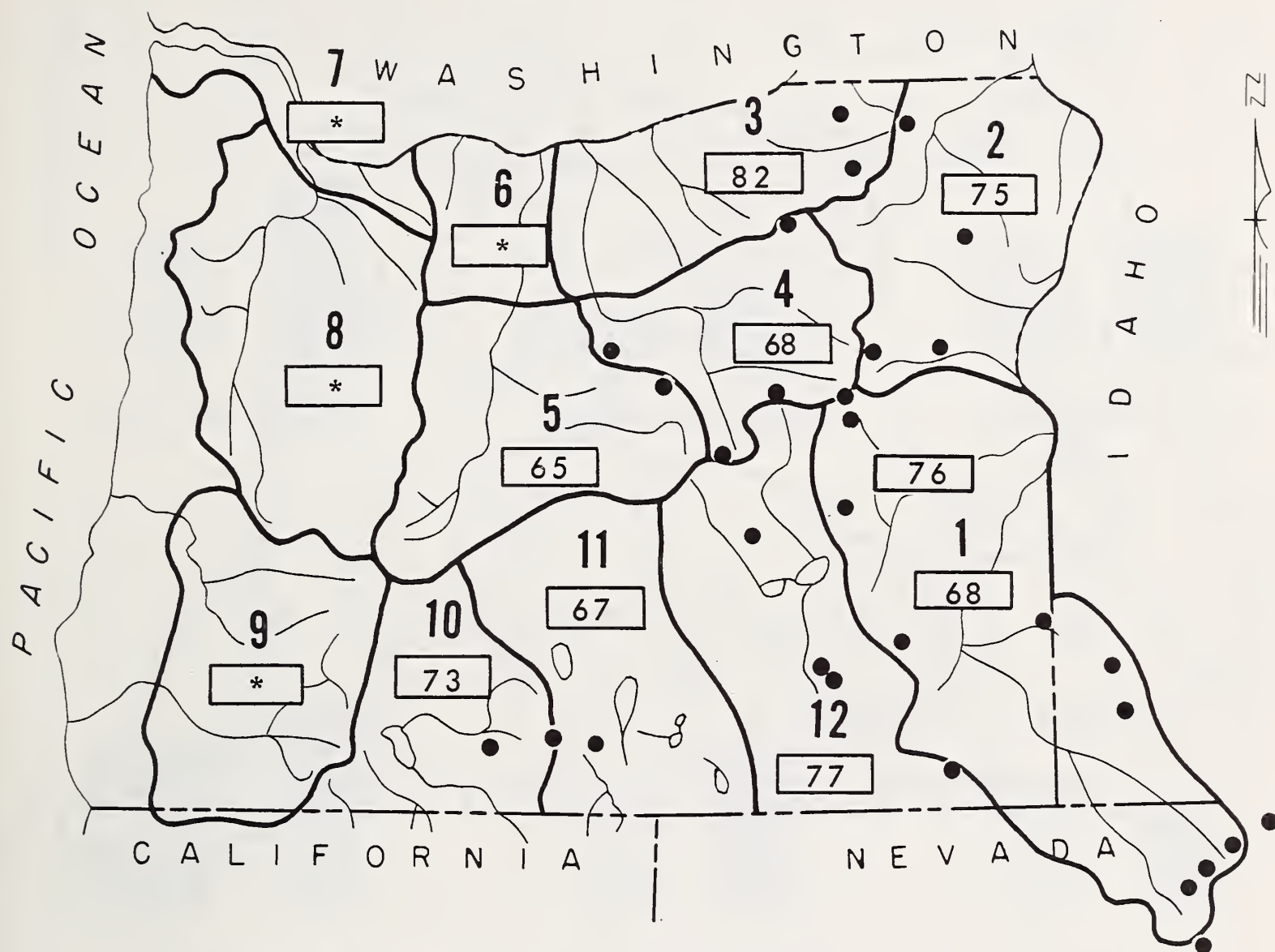
JANUARY 1, 1964



MOUNTAIN SOIL MOISTURE in OREGON

as percent of capacity

JANUARY 1, 1964



● Soil Moisture Station

*Moisture studies not yet developed in these areas.

VALLEY PRECIPITATION in OREGON ^a

JANUARY 1, 1964



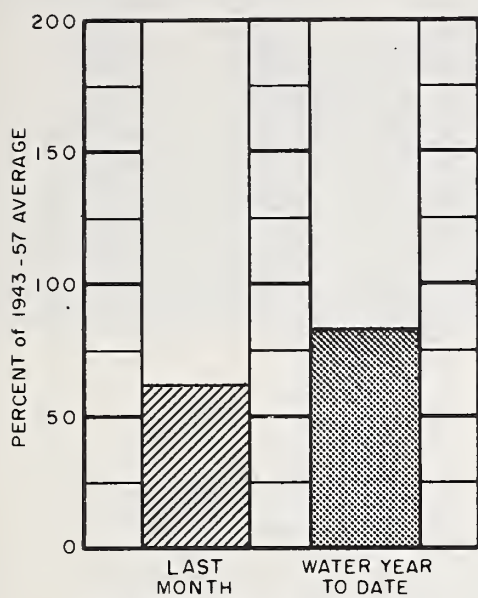
PRECIPITATION as PERCENT of the 1943 - 57 AVERAGE

STATION	LAST MONTH	WATER YEAR ^b TO DATE	STATION	LAST MONTH	WATER YEAR ^b TO DATE
BAKER APT.	89	86	LAKEVIEW	46	100
BEND	51	61	MEDFORD APT.	32	89
BURNS	61	81	NYSSA	91	109
ENTERPRISE	112	96	PENDLETON APT.	83	85
EUGENE APT	44	74	PORTLAND APT.	62	77
HEPPNER	71	77	ROSEBURG APT.	32	70
JOHN DAY	65	81	SALEM APT.	58	79
KLAMATH FALLS APT.	28	72	THE DALLES	69	75

(a) Preliminary data furnished by the U.S. Weather Bureau. (b) Oct. 1 to date. (c) Report delayed.

CURRENT OREGON STREAMFLOW

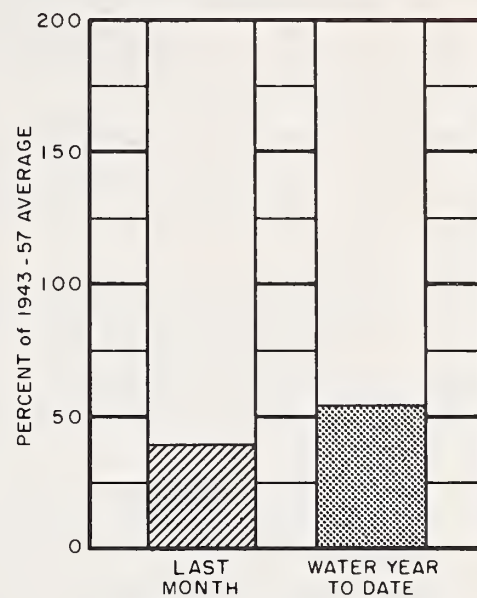
JANUARY 1, 1964



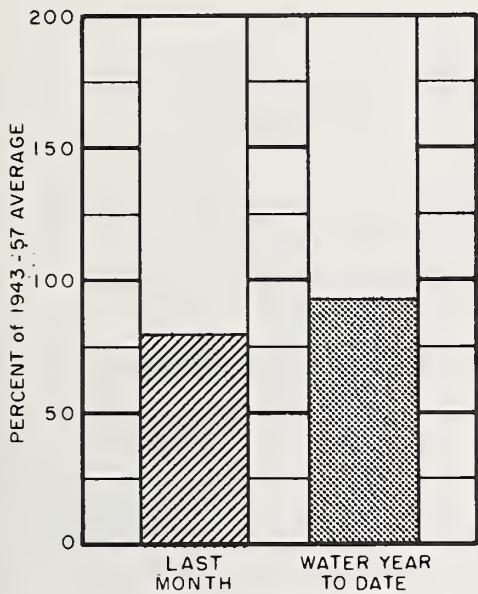
Owyhee Lake net inflow



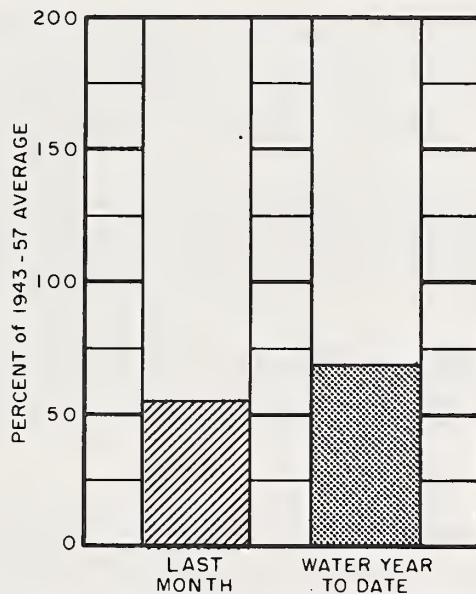
Umatilla near Umatilla



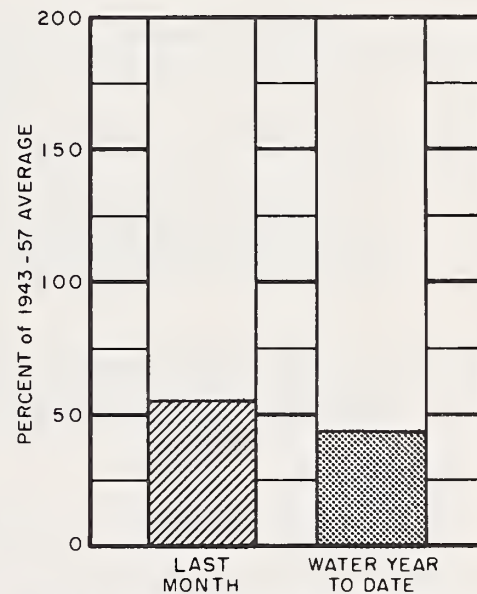
John Day at Service Creek



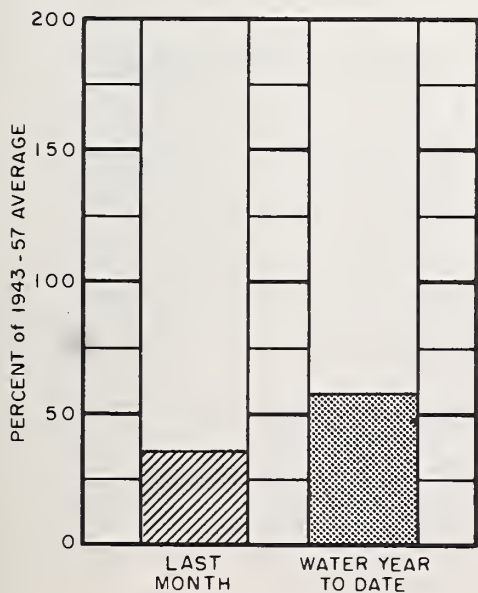
Deschutes at Moody



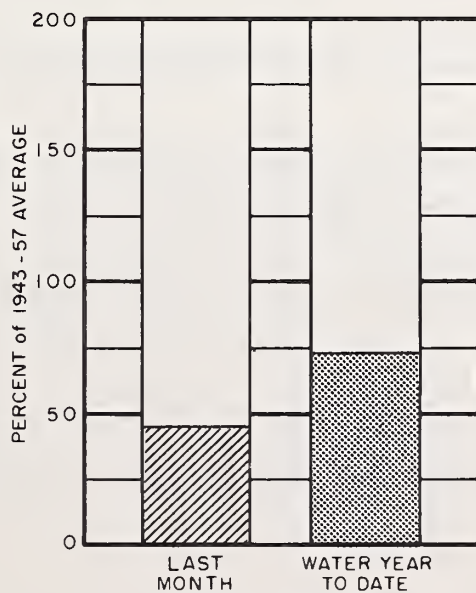
Hood and conduit near Hood River



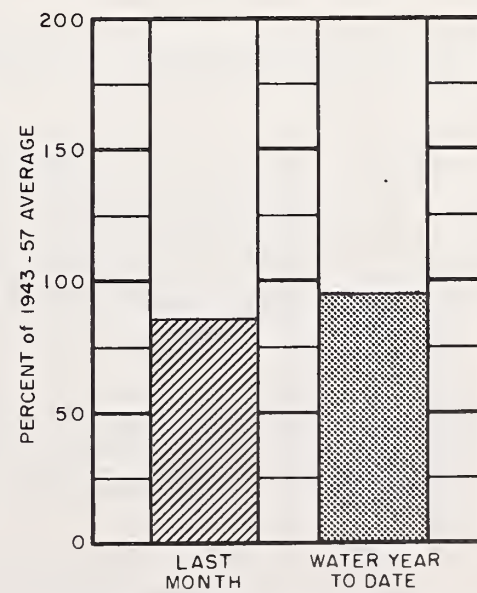
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow



WATER SUPPLY OUTLOOK OWYHEE, MALHEUR WATERSHEDS OREGON

as of

JANUARY 1, 1964



U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The water supply outlook for the 1964 irrigation season in Malheur County is fairly good. Reservoir storage is better than last year although still below the 1943-57 average. Snow cover is much better than last year at this time, but watershed soils are not quite as wet as they were January 1, 1963.

SNOW COVER - Water content of snow cover on the Owyhee watershed is better than last year at this time, but still only 68 percent of average.

The Malheur watershed has 74 percent of the 1943-57 average snow water content.

SOIL MOISTURE - Watershed soils are not as well wetted as last year on January 1. Measurements on the Owyhee show about 15 percent less moisture than last year, and average 68 percent of total capacity.

Measurements on the Malheur indicate about 10 percent less water than last year in the top 4 feet of soil on the watershed and average about 76 percent of capacity over the basin.

RESERVOIR STORAGE - Owyhee Reservoir contained 266,700 acre feet on January 1. This is 29 percent less than the 1943-57 average but is about 65,000 acre feet better than last year at this time and provides a good start for the 1964 irrigation season on the Owyhee Project.

Warm Springs Reservoir contained 50,000 acre feet on January 1, compared with only 22,800 acre feet last year.

Agency Valley Reservoir has 19,000 acre feet and had 14,600 a.f. last year. Combined storage in these two reservoirs plus 5,000 acre feet in Bully Creek Reservoir now totals about 74,000 a.f. or double the water in storage last year at this time and only about 13 percent below average. This is a good start towards a satisfactory water supply for water users under these reservoirs.

Antelope Reservoir has about 2,800 a. f. in storage and the average is 2,500 acre feet.

Jordan Valley Irrigation District reports very little trouble with ice in the feed canal so far this season.

(continued on next page)

STREAMFLOW - Inflow to Lake Owyhee was only 58 percent for December and 81 percent of the 1943-57 average since October 1.

Inflow to Warmsprings and Agency Valley reservoirs has been about 85 percent of average since October 1.

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek		
Bully Creek		
Cow Creek		
Jordan Creek		
Jordan Valley Irrig. Dist.		
McDermitt Creek		
Oregon Canyon Creek	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	
Owyhee Project		
Succor Creek		
Ten Mile Creek		
Vale Oregon Irrig. Dist.		
Warmsprings Irrig. Dist.		
Willow Creek (Reservoired)		

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Agency Valley	60.0	19.0	14.6	23.6
Antelope	55.0	2.8	- -	2.5
Bully Creek	31.0	5.0	- -	- -
Owyhee	715.0	266.7	202.1	377.8
Warmsprings	191.0	50.0	22.8	55.2

STREAMFLOW FORECASTS^a (1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
2140	Malheur near Drewsey	c	April-Sept.	81	
		c	Feb.-July	124	
2175	Malheur, North Fork at Beulah ^d	c	April-Sept.	64	
1825	Owyhee Reservoir net Inflow ^g	c	April-Sept.	430	
		c	Feb.-July	594	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Bear Creek (Nev.)	7800	72	16.8	11-1-63	9.6 ⁱ	11.4	- -
Big Bend (Nev.)	6700	48	16.7	f		14.7 ^j	13.8
Blue Mountain Springs	5900	42	16.9	12-26-63	8.8	12.3	7.6
Crane Prairie	5375	48	18.2	c		16.5	14.0
Folly Farm	4450	30	12.5	12-19-63	8.3	9.0	9.6
Jack Creek, Lower (Nev.)	6800	48	8.6	1-2-64	8.0	7.3	7.9
Jordan Valley	4250	48	19.3	12-19-63	14.6	14.9	14.3
Mud Flat (Ida.)	5500	48	12.8	11-8-63	6.6 ⁱ	6.3	5.6
Rodeo Flat (Nev.)	6800	42	11.0	f		10.6	11.0
Stinking Water Summit	4800	48	21.9	12-19-63	20.8	20.9	20.7
Taylor Canyon (Nev.)	6200	48	15.1	f		- -	11.6
Triangle (Ida.)	5150	48	16.6	11-8-63	11.5 ⁱ	13.4	13.9

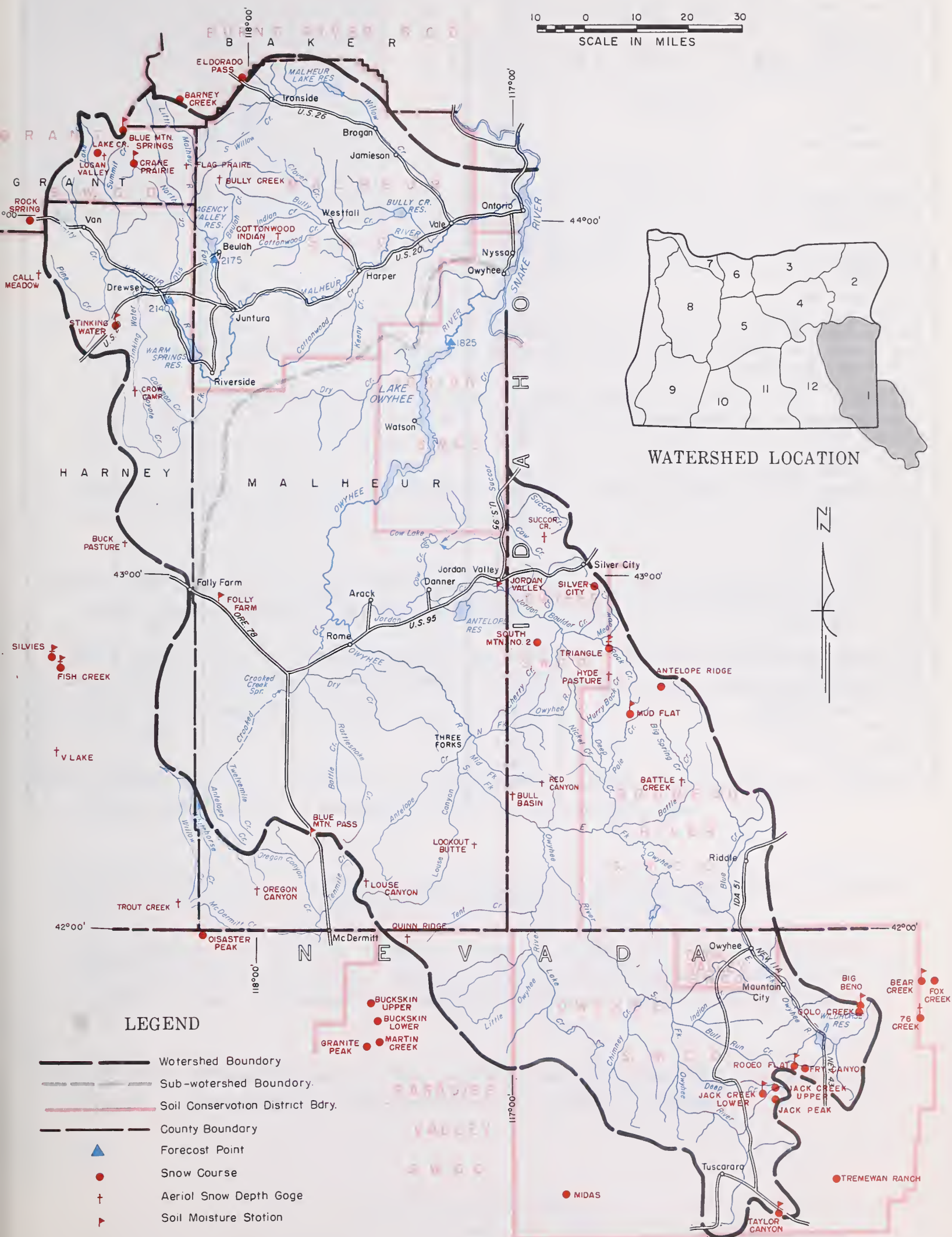
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Antelope Ridge (Ida.)	5900	c				
Barney Creek	5950	c				
Battle Creek (Ida.)	5700	c				
Bear Creek ^e (Nev.)	7800	12/30	21	4.5	2.9	- -

Continued

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow. (h) Not surveyed. (i) Nearest current data. (j) Partly estimated. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

OWYHEE, MALHEUR WATERSHEDS



SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Big Bend (Nev.)	6700	12/31	14	2.7	T	- -
Blue Mountain Springs	5900	12/26	16	3.6	3.1	7.0*
Buck Pasture ^e	5700	c				
Buckskin, Lower (Nev.)	6700	c				
Buckskin, Upper (Nev.)	7200	c				
Bull Basin ^e (Ida.)	5600	c				
Bully Creek ^e	5300	c				
Call Meadow ^e	5340	c				
Cottonwood-Indian ^e	4320	c				
Crane Prairie	5375	c				
Crow Camp ^e	5500	c				
Disaster Peak (Nev.)	6500	c				
Eldorado Pass	4600	12/30	10	4.0	T	- -
Fish Creek	7900	c				
Flag Prairie ^e	4750	c				
Fox Creek (Nev.)	6800	c				
Fry Canyon (Nev.)	6700	1/2	16	2.0	T	- -
Gold Creek (Nev.)	6600	12/31	12	2.4	T	- -
Granite Peak (Nev.)	7800	c				
Hyde Pasture ^e (Ida.)	5800	c				
Jack Creek, Lower (Nev.)	6800	f				
Jack Creek, Upper (Nev.)	7250	1/2	17	2.5	T	- -
Jacks Peak (Nev.)	8420	c				
Lake Creek	5120	12/30	17	2.9	0.1	- -
Logan Valley ^e	5100	c				
Lookout Butte ^e	5650	c				
Louse Canyon ^e	6440	c				
Martin Creek (Nev.)	6700	c				
Midas (Nev.)	7200	c				
Mud Flat (Ida.)	5500	c				
Oregon Canyon ^e	6950	c				
Quinn Ridge ^e (Nev.)	6300	c				
Red Canyon ^e (Ida.)	6500	c				
Rock Spring	5100	12/30	8	1.3	0.2	2.7*
Rodeo Flat (Nev.)	6800	1/2	15	2.1	T	- -
76 Creek (Nev.)	7100	c				
Silver City (Ida.)	6400	12/30	19	3.9	0.8	7.9
Silvies	6900	c				
South Mountain #2 (Ida.)	6340	12/29	16	3.2	0.4	4.8
Stinking Water	4800	12/30	5	0.9	T	2.1*
Succor Creek ^e (Ida.)	6100	c				
Taylor Canyon (Nev.)	6200	1/2	8	1.2	0.0	- -
Tremewan Ranch (Nev.)	5700	1/2	6	0.9	0.0	- -
Triangle ^e (Ida.)	5150	c				
Trout Creek ^e	7800	c				
"V" Lake ^e	6600	c				

WATER SUPPLY OUTLOOK BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The outlook for 1964 irrigation water supplies in Baker, Union, and Wallowa counties is fairly good as of this early winter date.

Snow cover, although still below average, is almost double last year's very low water content figure, but runoff from snow melt will be reduced somewhat by watershed soils that are drier than last year at this time.

Reservoir storage is better than average for January 1 and is a good start towards a satisfactory season for users of stored water.

SNOW COVER - Water content of the snow pack averages about double last year's scanty figure on January 1 although still below average for the 1943-57 period.

Burnt River watershed had 81 percent of average snow water content, Powder River snow courses averaged 67 percent and Grande Ronde River snow courses averaged 71 percent of average water content.

SOIL MOISTURE - Soil moisture in the top 4 feet of watershed soils averages 75 percent of total capacity and 11 percent less than last year at this time.

RESERVOIR STORAGE - Reservoir storage in Unity and Wallowa reservoirs is 125 percent of the 1943-57 average, but slightly less than last year at this time.

Unity Reservoir has 6,300 a. f. and last year had 9,200 acre feet. Its average is 6,000 acre feet for January 1. Wallowa Lake has 20,900 acre feet and last year had 21,000 acre feet. Its January 1 average is 15,800 a.f. for the 1943-57 period.

STREAMFLOW - Flow of streams in this area has been below the 1943-57 average since October 1. Burnt River has averaged about 70 percent for this period.

Report prepared by

W. T. FROST AND BOB L. WHALEY

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope Baker Valley Big Creek Clover Cr. (nr. N. Powder) Cove Durkee Eagle Valley Elgin Enterprise-Joseph Hereford-Bridgeport Imnaha River La Grande-Island City Lostine-Wallowa No. Powder River-Wolf Cr. Pine Valley Powder River-Elk Creek Summerville Sumpter Valley Union-Hot Lake Unity	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Unity	25.2	6.3	9.2	6.0
Wallowa Lake	37.5	20.9	21.0	15.8

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.)

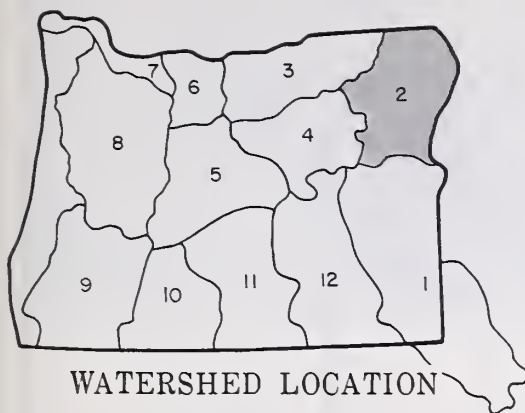
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
3305	Bear near Wallowa	c	April-Sept.	74	
2730	Burnt near Hereford ^d	c	April-Sept.	45	
		c	Feb.-June	55	
3200	Catherine near Union	c	April-Sept.	73	
3190	Grande Ronde at La Grande	c	March-Sept.	245	
		c	April-Sept.	202	
3295	Hurricane near Joseph	c	April-Sept.	49	
2920	Imnaha at Imnaha	c	April-Sept.	314	
3300	Lostine near Lostine	c	April-Sept.	133	
2755	Powder near Baker	c	April-Sept.	66	
		c	April-July	65	
3250	Wallowa, East Fork near Joseph ^d	c	April-Sept.	12.1	
		c	April-July	9.7	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Summit	5100	36	16.8	12-26-63	9.3	11.9	5.8
Emigrant Springs	3925	48	22.3	12-20-63	19.0	19.9	15.0
Tollgate	5070	48	23.6	12-30-63	18.9	21.5	21.3

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated. (h) Not surveyed. (i) Nearest current data. (j) Partly estimated. (*) 1943-57 Adjusted averages.

BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bary.
- County Boundary
- Forecast Point
- Snow Course
- Soil Moisture Station
- Aerial Snow Depth Gage

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Aneroid Lake #1	7480	c				
Aneroid Lake #2	7000	c				
Anthony Lake	7125	12/27	34	8.5	5.8	12.6*
Bald Mountain ^e (Ore.)	6700	c				
Barney Creek	5950	c				
Beaver Reservoir	5340	12/30	14	3.1	1.3	5.1*
Big Sheep ^e	6200	c				
Blue Mountain Summit	5098	12/26	10	1.5	2.4	4.1
Bourne	5800	c				
County Line	4800	1/3	5	1.3	0.2	3.4*
Dooley Mountain	5430	12/31	15	2.9	1.6	4.0
Eilertson Meadows	5400	12/27	16	3.1	1.8	5.2*
Eldorado Pass	4600	12/30	10	4.0	T	- -
Gold Center	5340	c				
Goodrich Lake	6775	c				
Little Alps	6200	12/27	18	4.1	2.1	- -
Lucky Strike	5050	c				
Meacham	4300	12/20	9	1.7	0.0	- -
Mirror Lake ^e	8200	c				
Moss Spring	5850	12/30	25	6.6	2.4	10.8
Schneider Meadows	5400	c				
Schoolmarm	4775	1/3	5	1.0	0.1	2.8*
Standley ^e	7400	c				
Taylor Green	5740	c				
Tipton	5100	12/26	16	3.0	2.0	5.3*
Tollgate	5070	12/30	32	8.6	3.2	- -
TV Ridge ^e	5670	c				

"The Conservation of Water begins with the Snow Survey"



WATER SUPPLY OUTLOOK UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 water supply outlook for irrigation in Umatilla, Morrow and Gilliam counties at this early winter date varies from fair on the main stems of the Walla Walla and Umatilla to poor on McKay, Birch, Butter, Willow and Rock Creeks. Stored water supplies in Cold Springs Reservoir are good but poor in McKay. The snowpack contains much more water than last year at this date, but is still below average.

SNOW COVER

Water content of the mountain snowpack is 76 percent of average, but is three times greater than last year on January 1. At least two more months remain in which the snowpack can be expected to increase and improve the water outlook.

SOIL MOISTURE

Moisture in the top 4 feet of soil mantle in these watersheds averages 82 percent of capacity, which is just a little less than last year, but still satisfactory for runoff of snowmelt water.

RESERVOIR STORAGE

Cold Springs Reservoir already has 23,900 acre feet in storage compared with 27,400 a year ago at this date. The average for January 1 is about 20,200 acre feet.

McKay Reservoir contains only 5,328 acre feet compared with 10,600 on January 1 last year. The average is about 26,000 acre feet for this date. Storage has been this low or lower in only five of the past 36 years on January 1.

STREAMFLOW

Flow of the Umatilla, as measured near Umatilla*, has been extremely low averaging only about 27 percent in the period October 1 through December 31. Flow of McKay Creek has been about half of the average flow this season to date.

* Preliminary streamflow data from U. S. Geological Survey, Portland, Oregon

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek		
Butter Creek		
Dry Creek		
Dugger Creek		
Johnson Creek		
McKay Creek		
Mill Creek		
Mud Creek		
Pine Creek		
Rhea Creek		
Rock Creek		
Umatilla River (Cold Springs Reservoir)		
Umatilla River, Main		
Umatilla River (McKay Res.)		
Walla Walla River, Little		
Walla Walla River, Main		
Walla Walla River, No. Fork		
Walla Walla River, So. Fork		
Willow Creek		

Forecasts begin in the February 1 report which will reach you about February 10, 1964.

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cold Springs	50.0	23.9	27.4	20.2
McKay	73.8	5.3	10.6	26.0

STREAMFLOW FORECASTS^a (1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
0320	Butter Creek near Pine City	c	April-Sept.	9.8	
0225	McKay near Pilot Rock	c	Feb.-Sept.	61	
		c	April-Sept.	31	
0200	Umatilla near Gibbon	c	April-Sept.	96	
0210	Umatilla at Pendleton	c	April-Sept.	187	
		c	April-Sept.	182	
		c	April-July	182	
0100	Walla Walla, South Fork near Milton	c	April-Sept.	76	
		c	April-July	62	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Athena-Weston	1700	48	18.7	12-30-63	13.7	15.0	13.2
Battle Mountain Summit	4340	48	13.8	12-20-63	12.4	11.7	9.7
Emigrant Springs	3925	48	22.3	12-20-63	19.0	19.9	15.0
Tollgate	5070	48	23.6	12-30-63	18.9	21.5	21.3

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Nearest current data. (h) Partly estimated. (*) 1943-57 adjusted average. (**) Average for 5 or more years in base period.

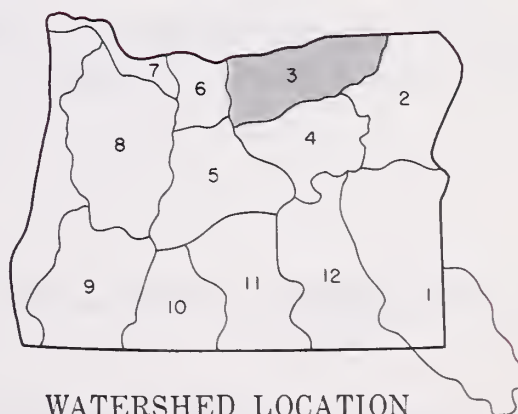
UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▼ Soil Moisture Station



WATERSHED LOCATION

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Arbuckle Mountain	5400	c				
Battle Mountain Summit	4340	12/20	4	0.5	0.0	--
Blue Mountain Camp	4300	12/30	18	4.2	--	--
Emigrant Springs	3925	12/20	7	0.8	0.0	--
Lucky Strike	5050	c				
Meacham	4300	12/20	9	1.7	0.0	--
Tollgate	5070	12/30	32	8.6	3.2	--
Weston Mountain	2700	12/30	0	0.0	--	--

WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

as of
JANUARY 1, 1964



U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 water supply outlook for the Upper John Day Basin is fair, at this early winter date. Snow cover is better than last year but well below average and soil moisture is about 10 percent less than last year on January 1.

SNOW COVER

Water content of the Upper John Day snowpack is almost double last year's January 1 measurements although still only 61 percent of the 1943-57 average. The next two or three winter months usually account for about three-fifths of the total winter's "snow catch", so there is still time to make up the deficit.

SOIL MOISTURE

Watershed soils are about 10 percent drier than last year and now average 68 percent of total capacity. Two years ago soil moisture was about 25 percent less than this year.

STREAMFLOW

Flow of the John Day at Service Creek* was only 38 percent of average for December and has been only 52 percent since October 1.

* Preliminary streamflow data from U. S. Geological Survey, Portland, Oregon.

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Beech Creek Beech Creek-Fox-Long Cr. Bridge-Mountain Creeks Camas Creek Cherry Creek Indian-Pine Creeks John Day River, Main Fork John Day River, Mid. Fork John Day River, N. Fork John Day River, S. Fork Monument-Kimberly Strawberry Creek	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
0385	John Day at Prairie City	c	April-Sept.	54	
		c	March-July	59	
0440	John Day, Middle Fork at Ritter	c	April-Sept.	135	
		c	March-July	158	
0375	Strawberry near Prairie City	c	April-Sept.	9.1	

SOIL MOISTURE

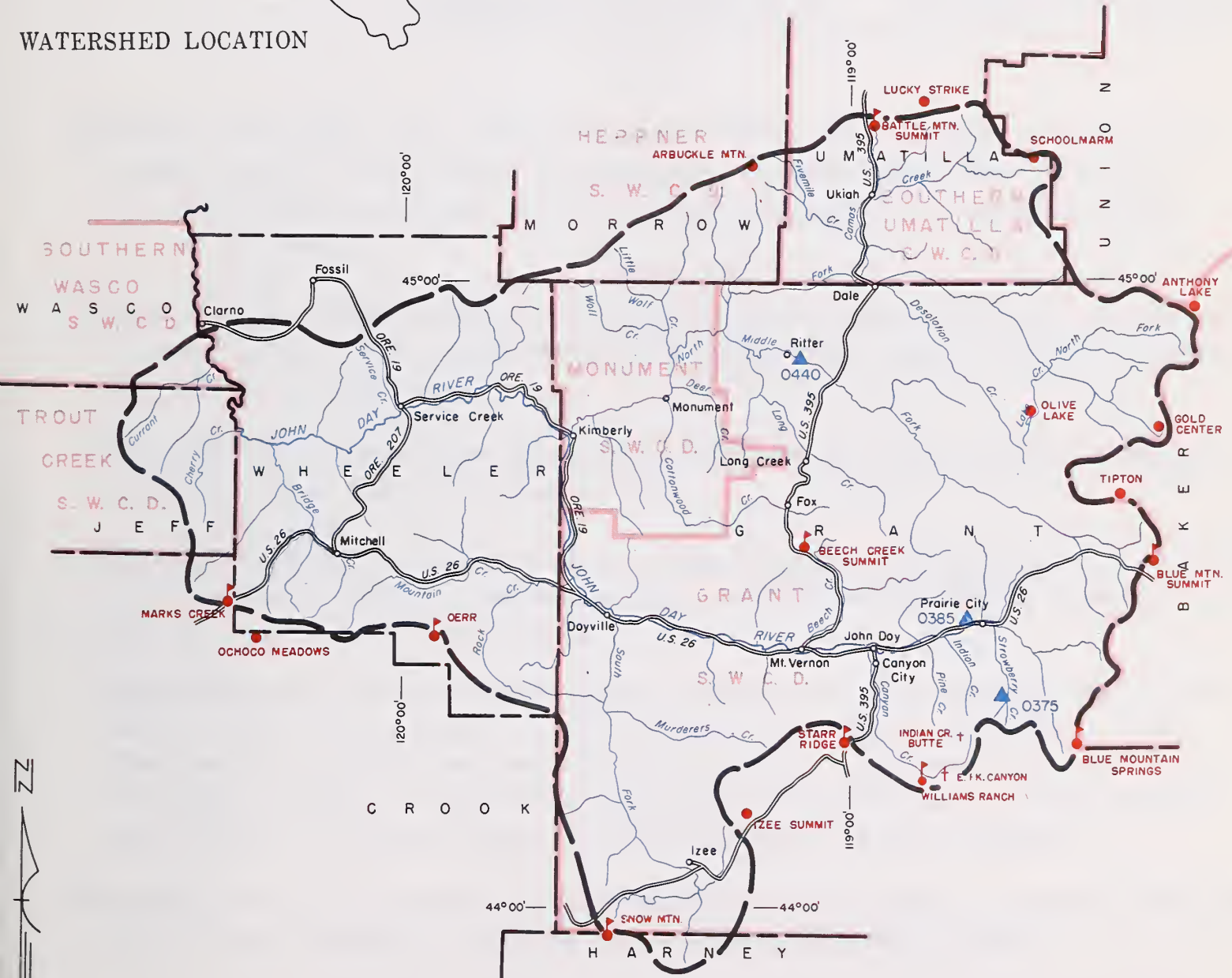
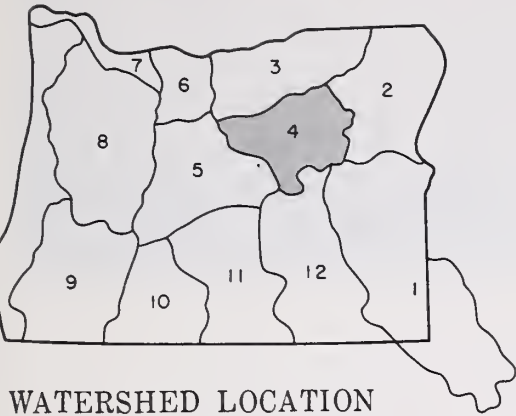
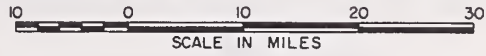
STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Battle Mountain Summit	4340	48	13.8	12-20-63	12.4	11.7	9.7
Blue Mountain Springs	5900	42	16.9	12-26-63	8.3	12.3	7.6
Blue Mountain Summit	5100	36	16.8	12-26-63	9.3	11.9	5.8
Derr	5670	24	9.0	c			
Marks Creek	4540	36	14.1	12-30-63	9.2	10.0	9.5
Snow Mountain	6300	48	16.7	c			
Starr Ridge	5150	36	10.6	12-27-63	10.1	10.3	6.8

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Anthony Lake	7125	12/27	34	8.5	5.8	12.6*
Arbuckle Mountain	5400	c				
Battle Mountain Summit	4340	12/20	4	0.5	0.0	- -
Beech Creek Summit	4800	12/27	7	1.6	0.0	2.3*
Blue Mountain Springs	5900	12/26	16	3.6	3.1	7.0*
Blue Mountain Summit	5098	12/26	10	1.5	2.4	4.1
Derr	5670	c				
East Fork Canyon ^e	5700	c				
Gold Center	5340	c				
Indian Creek Butte ^e	6550	c				
Izee Summit	5293	12/26	8	1.9	0.0	4.6*
Lucky Strike	5050	c				
Marks Creek	4540	12/30	7	2.2	0.0	- -
Ochoco Meadows	5200	c				
Olive Lake	6000	12/31	25	5.6	2.3	8.4*
Schoolmarm	4775	1/3	5	1.0	0.1	2.8*
Snow Mountain	6300	c				
Starr Ridge	5150	12/27	7	1.2	0.0	2.8*
Tipton	5100	12/26	16	3.0	2.0	5.3*
Williams Ranch	4500	c				

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Nearest current data. (i) Partly estimated. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

UPPER JOHN DAY WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▲ Soil Moisture Station
- † Aerial Snow Depth Gage



"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1964 water supply outlook for Deschutes, Jefferson, and Crook counties is fairly good. The snowpack, although better than last year, is still well below average and reservoir storage, although good, is slightly below last year on January 1.

SNOW COVER - Water content of the snowpack is 75 percent greater than last year on January 1, but is still only 41 percent of average for the Upper Deschutes-Crooked River Basin as a whole.

SOIL MOISTURE - Marks Creek soil moisture is 65 percent of total capacity or about 6 percent less than last year on January 1.

RESERVOIR STORAGE - Crooked River reservoirs, Ochoco and Prineville, contain 21,300 acre feet and 99,700 acre feet respectively, which in total is slightly more than last year on January 1 and about average.

Deschutes River reservoirs contain about 10 percent less water than last year on January 1. Wickiup now holds 117,100 acre feet, Crane Prairie, 34,600 a.f. and Crescent Lake, 42,500 acre feet. The total of these three reservoirs is about 7 percent above average. Crane Prairie and Crescent Lake are 3 percent below average and Wickiup is 15 percent above the 1943-57 average period on January 1.

STREAMFLOW - Flow of the Deschutes at Moody* was 78 percent of average for December and has been 90 percent of average for the October-December period.

* Preliminary streamflow data from U. S. Geological Survey, Portland, Oregon.

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation District	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	
Bear Creek		
Beaver Creek		
Camp Creek		
Central Ore. Irrig. Dist.		
Crooked River		
Deschutes River		
Hay-Trout Creeks		
Lone Pine Irrig. Dist.		
Mill Creek		
North Unit Irrig. Dist.		
Ochoco Creek		
Sisters Irrigation Dist.		
Snow Creek Irrig. Dist.		
Squaw Creek Irrig. Dist.		
Swalley Ditch		
Tumalo Project		
Walker Basin Irrig. Dist.		

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Crane Prairie	55.3	34.6	39.8	35.5
Crescent Lake	117.2	42.5	57.3	43.6
Ochoco	47.5	21.3	27.2	21.1
Prineville	153.0	99.7	92.1	- -
Wickiup	182.0	117.1	119.7	102.0
Note: Current storage figure for Crescent Lake includes 5360 acre feet of known dead and inactive storage.				

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

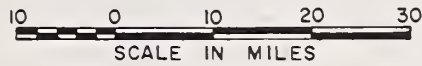
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
0535	Crane Prairie Reservoir total Inflow	c	April-Sept.	143	
0600	Crescent at Crescent Lake ^d	c	March-July	28	
		c	April-Sept.	31	
0795	Crooked near Post	c	Feb.-July	207	
		c	April-Sept.	129	
0645	Deschutes at Benham Falls ^d	c	April-Sept.	602	
		c	April-July	404	
0500	Deschutes below Snow Creek	c	April-Sept.	74	
0630	Deschutes, Little near Lapine ^d	c	Feb.-July	129	
		c	April-Sept.	113	
0848	Ochoco Reservoir net Inflow	c	Feb.-June	51	
		c	April-Sept.	32	
0555	Odell near Crescent	c	April-Sept.	34	
0750	Squaw near Sisters	c	April-Sept.	55	
0730	Tumalo near Bend ^d	c	April-Sept.	55	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Derr	5670	24	9.0	i			
Marks Creek	4540	36	14.1	12-30-63	9.2	10.0	9.5
Snow Mountain	6300	48	16.7	i			

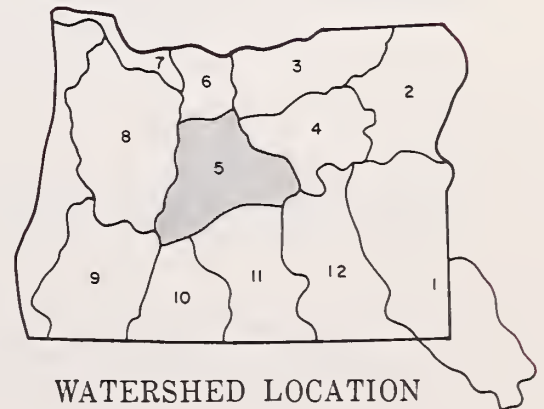
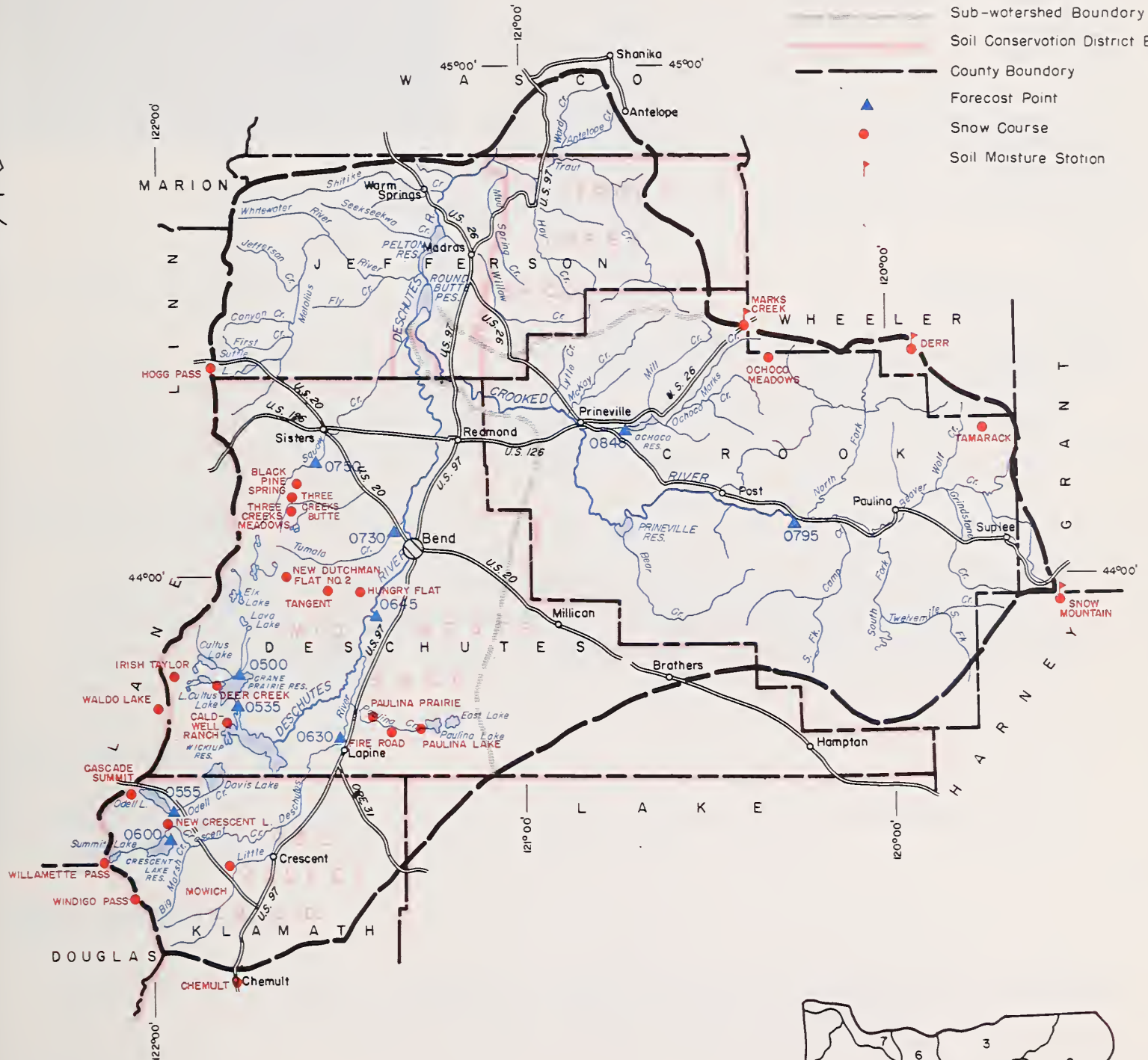
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated. (*) 1943-57 Adjusted average. (h) Nearest current data.

UPPER DESCHUTES, CROOKED WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ▼ Soil Moisture Station



SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Black Pine Spring	4600	c				
Caldwell Ranch	4400	c				
Cascade Summit	4880	12/30	14	4.9	4.3	14.9*
Chemult	4760	12/29	10	2.8	1.1	5.6*
Derr	5670	c				
Fire Road	5050	c				
Hogg Pass	4755	12/24	24	6.7	4.1	18.4
Hungry Flat	4400	c				
Irish-Taylor	5500	c				
Marks Creek	4540	12/30	7	2.2	0.0	- -
Mowich	4700	c				
New Crescent Lake	4800	c				
New Dutchman Flat #2	6400	c				
Ochoco Meadows	5200	c				
Paulina Lake	6330	c				
Paulina Prairie	4285	c				
Snow Mountain	6300	c				
Tamarack	4800	c				
Tangent	5400	c				
Three Creeks Butte	5200	c				
Three Creeks Meadows	5600	c				
Waldo Lake	5500	c				
Willamette Pass	5600	c				
Windigo Pass	5800	c				

"The Conservation of Water begins with the Snow Survey"



WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 irrigation water supply outlook in Hood River-Wasco County is fair. Snow cover is much better than last year although still only 47 percent of the 1943-57 average for January 1. Soil moisture is slightly less than last year and streamflow has been well below average since October 1.

SNOW COVER

Water content of the mountain snowpack averages only 47 percent of the 1943-57 period, but all courses measured some snow except Parkdale, which is the lowest on the watershed. The higher elevation measurements show almost double last year's January 1st water content.

SOIL MOISTURE

Watershed soils contain somewhat less moisture than last year at this time, due to below average fall precipitation.

RESERVOIR STORAGE

Storage in Clear Lake was depleted last year and there is no usable water as of January 1. Last year the reservoir held 3,200 acre feet on January 1st.

STREAMFLOW

The flow of Hood River* was 53 percent for December and has been only 66 percent for the October-December period.

* Preliminary streamflow data from U. S. Geological Survey, Portland, Oregon.

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch Badger Creek Dee Irrigation District East Fork Irrig. Dist. Farmers Irrig. Dist. Hood River Irrig. Dist. Juniper Flat Middle Fork Irrig. Dist. Mile Creeks Mill Creek Mount Hood Irrig. Dist. Rock-Gate-Threemile Crs. Tygh Creek White River	Forecast begins in the February 1 report which will reach you about February 10, 1964	

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	- -	0.0	3.2	- -

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
1210	Hood near Hood River ^d	c	April-Sept.	365	
		c	April-July	311	
1185	Hood, West Fork near Dee	c	April-Sept.	174	
		c	April-July	151	
1015	White below Tygh Valley	c	April-Sept.	178	
		c	April-July	161	

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Brooks Meadows	4300	c				
Clear Lake	3500	12/30	1	0.2	0.0	- -
Clear Lake (Experimental)	3500	12/30	7	1.8	0.0	- -
Cooper Spur	3490	12/31	10	3.2	T	- -
Greenpoint Reservoir	3400	c				
Knebal Springs	3850	c				
Lambert Point ^e	7000	f				
Parkdale	1770	12/31	0	0.0	0.0	- -
Phlox Point	5600	12/27	47	17.1	8.7	29.8*
Red Hill	4400	c				
Still Creek	3700	12/30	9	3.2	2.2	11.8*
Switchback	3255	c				
Tilly Jane	6000	c				
Ulrich Ranch Junction	3350	c				
Umbrella Falls		12/18	44	19.0	- -	- -
Upper Valley	2530	12/31	6	1.7	0.0	- -

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Partly estimated. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

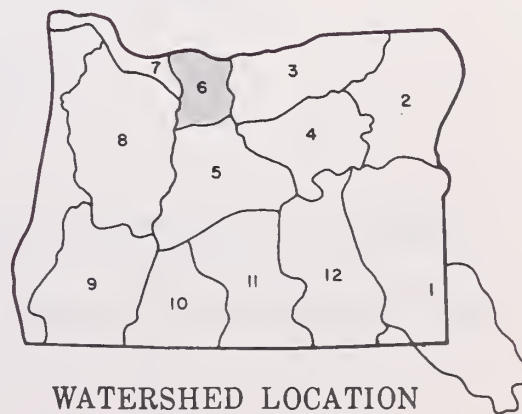
(h) Water content for April 1 published as 3.0 and should have been 3.3.

HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS



LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- Soil Conservation District Bdry.
- - - County Boundary
- ▲ Forecast Point
- Snow Course
- ↑ Aerial Snow Depth Gage
- ▼ Soil Moisture Station





"The Conservation of Water begins with the Snow Survey"



WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 streamflow prospects are below average flow for the Columbia and its tributaries in the United States section of the basin. Water supply outlook for irrigation is much better than indicated by the early season snow accumulation. Irrigation and power storage reservoirs have generally higher levels than those of a year ago because of less than average water demands during the 1963 season.

SNOW COVER

Snow cover to date ranges from near average in northern Washington and in British Columbia to less than 50 percent of average on the Willamette and other lower basin streams with headwaters in Oregon. On upper basin tributaries, the Snake, Salmon, Clearwater, Clark Fork, Flathead, and Kootenai, snow cover to date is 60 to 80 percent of average. However, much of the snow accumulation season lies ahead.

SOIL MOISTURE

Soil moisture conditions tend to be near average in the western section of the basin with some deficiency in the headwaters area of the Upper Snake, the tributaries in Central Idaho, and the Owyhee.

STREAMFLOW

The flow of the Columbia at The Dalles* has been less than average since October 1. The record by months is as follows:

<u>Month</u>	<u>Percent of Average Discharge (1943-57)</u>			
October	87	adjusted for storage		
November	85	"	"	"
December	74	"	"	"

The flow of the Snake River and its tributaries has been near one-half of average.

* From preliminary data furnished by Current Records Center, U. S. Geological Survey, Portland, Oregon.

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) As of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^c
NO.	NAME				
1057	Columbia at The Dalles	c c	April-Sept. April-June	106,100 72,000	

HISTORICAL DATA (Columbia River at The Dalles)

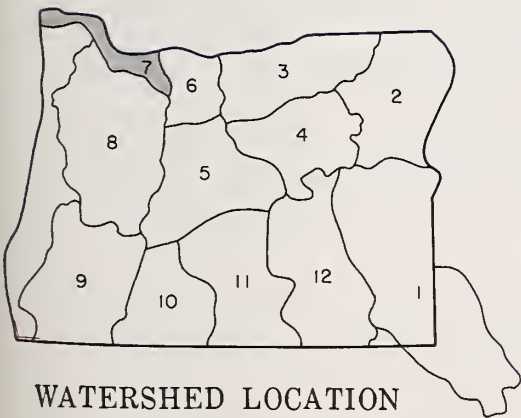
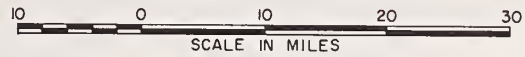
YEAR	STREAMFLOW ^c (1,000 A.F.)			PEAK ^e (1,000 c.f.s.)	DATE
	APR. - SEPT.	APR. - JUNE	MAY - JUNE		
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23
1960	97,000	64,000	48,000	442	June 6

LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)^f

VANCOUVER ^g GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L. All other readings are in feet above M.S.L.

LOWER COLUMBIA WATERSHEDS



WATERSHED LOCATION

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- 50 River Miles
- Snow Course



"The Conservation of Water begins with the Snow Survey"



WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1964 water supply outlook for the Willamette Valley is fair. Snow cover, although better than last year, is still well below average and reservoirs hold a little more water than last year at this early winter date.

SNOW COVER - Snow measurements taken the last week of December indicate slightly better water contents than last year, but still only about 26 percent of the 1943-57 average period. Late measurements taken on the McKenzie watershed on January 6 show good increases to the snowpack but are still well below average. These measurements should not be compared to the January 1 average, since they are 7-10 days later than data used in the average.

SOIL MOISTURE - Watershed soils are slightly drier than last year but are still well enough wetted to produce good runoff from winter rains or spring snowmelt.

RESERVOIR STORAGE - The seven multi-purpose reservoirs on Willamette tributaries operated by the U. S. Corps of Army Engineers are slightly ahead of last year on January 1 and will be filled according to a pre-arranged flood control plan.

Timothy Lake, operated by Portland General Electric Company, on the Clackamas River, contains 52,600 acre feet of usable storage. Last year it held 61,600 a. f. on January 1.

STREAMFLOW - The Middle Fork of the Willamette* flowed 55 percent of average during December and only 44 percent for the October-December period.

* Preliminary data from U. S. Geological Survey, Portland, Oregon.

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya Clackamas McKenzie Molalla Santiam, North Santiam, South Willamette, Coast Fork Willamette, Middle Fork	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottage Grove	30.8*	0.2	0.0	3.1
Cougar	219.3*	0.0	- -	- -
Detroit	299.9*	10.0	0.0	- -
Dorena	70.5*	2.1	0.1	5.3
Fern Ridge	94.2*	0.0	0.2	15.8
Hills Creek Res.	249.0*	3.8	0.0	- -
Lookout Point	337.2*	20.7	0.0	- -
Timothy Lake	61.6	52.6	61.6	- -
*Multiple purpose reservoir--space reserved primarily for flood runoff.				

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) As of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
2080	Clackamas at Big Bottom	c	April-Sept.	184	
		c	April-July	150	
2100	Clackamas at Estacada	c	April-Sept.	879	
		c	April-July	763	
2095	Clackamas above Three Lynx	c	April-Sept.	674	
		c	April-July	578	
1590	McKenzie at McKenzie Bridge	c	April-Sept.	640	
		c	April-July	488	
1625	McKenzie near Vida	c	April-Sept.	1362	
		c	April-July	1120	
2090	Oak Grove Fork above Power Intake	c	April-Sept.	198	
		c	April-July	156	
1545	Row near Dorena	c	April-Sept.	114	
		c	April-July	109	
1830	Santiam, North at Mehama ^d	c	April-Sept.	968	
		c	April-July	866	
1875	Santiam, South at Waterloo	c	April-Sept.	652	
		c	April-July	616	
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	c	April-Sept.	909	
		c	April-July	804	
1910	Willamette at Salem ^d	c	April-Sept.	5461	
		c	April-July	4942	

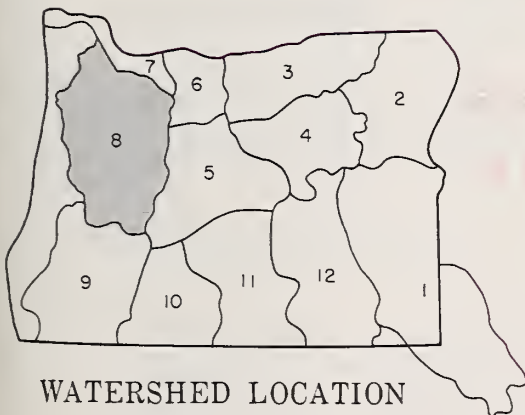
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

WILLAMETTE WATERSHEDS

LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bary.
- County Boundary
- ▲ Forecast Point
- Snow Course

10 0 10 20 30
SCALE IN MILES



SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Big Bottom	2118	12/28	0	0.0	0.0	2.6*
Cascade Summit	4880	12/30	14	4.9	4.3	14.9*
Champion	4500	12/31	0	0.0	0.0	10.5*
Clackamas Lake	3400	c				
Clear Lake	3500	12/30	1	0.2	0.0	--
Clear Lake (Experimental)	3500	12/30	7	1.8	0.0	--
Dead Horse Grade	3800	1/6	23	3.7	0.0	8.7*
Detroit Town	1610	12/24	0	0.0	0.0	0.3
Detroit Dam	1580	12/24	0	0.0	0.0	0.4
Golden Curry Creek	3136	12/31	0	0.0	0.0	4.3*
Hogg Pass	4755	12/24	24	6.7	4.1	18.4
Lake Harriet	2045	12/29	0	0.0	0.0	1.1*
Layng Creek	1200	12/31	0	0.0	0.0	T
Lost Creek Ranch	1956	1/6	6	1.7	0.0	0.0
Lund Park	1740	12/31	0	0.0	0.0	1.4
Marion Forks	2730	12/24	0	0.0	0.0	5.7
Marys Peak	3620	c				
McCredie Springs	2120	12/30	0	0.0	0.0	0.5
McKenzie	4800	1/6	62	15.5	5.2	20.4*
McKenzie Bridge	1372	1/6	6	1.5	0.0	T
Meridian Dam	750	12/30	0	0.0	0.0	0.0
Mill City	826	12/24	0	0.0	0.0	0.0
Oakridge	1310	12/30	0	0.0	0.0	0.1
Peavine Ridge	3500	12/29	5	1.9	--	7.5
Phlox Point	5600	12/27	47	17.1	8.7	29.8*
Railroad Overpass	2750	12/30	0	0.0	0.0	1.4*
Salt Creek Falls	4000	12/30	0	0.0	0.0	7.1*
Santiam Junction	3990	12/24	8	1.0	1.0	10.7
Still Creek	3700	12/30	9	3.2	2.2	11.8*
Timothy Lake	3295	12/29	6	1.3	T	--
Vida	800	1/6	0	0.0	0.0	0.0
Waldo Lake	5500	c				
Weaver Creek	2440	12/31	0	0.0	0.0	0.4
White Branch Slide	2800	1/6	8	2.2	0.0	3.4*
Whitewater Bridge	2175	12/24	0	0.0	0.0	3.2*
Willamette Pass	5600	c				

"The Conservation of Water begins with the Snow Survey"



WATER SUPPLY OUTLOOK ROGUE, UMPQUA, WATERSHEDS OREGON

as of
JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 water supply outlook for irrigation in the Umpqua and Rogue basins is reasonably good for lands served from the combined reservoirs of Jackson County but will be only fair for lands dependent on natural streamflow.

SNOW COVER

Water content of the mountain snowpack is only 42 percent of the January 1 average and only slightly greater than the very poor pack one year ago. Several months still remain in which snow can be expected to accumulate and improve this outlook.

SOIL MOISTURE

Watershed soils under the snowpack are reported to be well recharged by fall rains although not as wet as a year ago.

RESERVOIR STORAGE

Stored water supplies for the Medford and Rogue River Valley Irrigation Districts are held in Fish and Fourmile Lakes where the supply now totals 14,000 acre feet compared with 11,300 last year and a 15 year average of 12,300 acre feet.

Water for the Talent Irrigation District is held in Hyatt Lake, Howard Prairie and Emigrant Gap reservoirs, which now total 75,100 acre feet compared with 74,000 a year ago.

Report prepared by
W. T. FROST AND BOB L. WHALEY
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
209 S.W. FIFTH AVENUE • PORTLAND 4, OREGON

STREAMFLOW

Flow of the Rogue River at Raygold* has been 74 percent average since October 1 but was only 46 percent in the month of December.

Flow of the Umpqua River near Elkton* has been 60 percent average since October 1, but only 35 percent in December.

* Preliminary data from Pacific Power and Light Company, Medford, Oregon and from U. S. Geological Survey, Portland, Oregon.

WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek		
Applegate River, Big		
Applegate River, Little		
Ashland Creek		
Butte Creek, Little		
Butte Creek, Big		
Cow Creek		
Deer Creek		
Elk Creek		
Emigrant Creek (abv. Res.)		
Evans Creek		
Gold Hill Irrigation Dist.		
Grants Pass Irrig. Dist.		
Grave Creek		
Illinois River, East Fork		
Illinois River, West Fork		
Jump-off-Joe Creek		
Neil Creek		
Red Blanket Creek		
Rogue River		
Sucker Creek		
Table Rock Irrig. Dist.		
Thompson Creek		
Wagner Creek		
Williams Creek		

Forecasts begin in the February 1 report which will reach you about February 10, 1964.

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

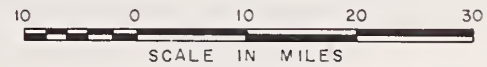
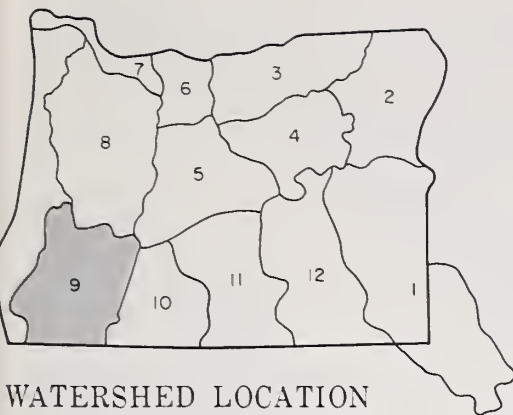
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Emigrant Gap	39.0	18.6	21.0	3.8
Fish Lake	7.8	4.1	4.5	4.6
Fourmile Lake	16.1	9.9*	6.8	7.7
Howard Prairie	60.0	45.8	41.6	- -
Hyatt Prairie	16.1	10.7	12.3	5.4
* Estimated				

STREAMFLOW FORECASTS^a (1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
3620	Applegate near Copper	c	April-Sept.	131	
3145	Clearwater above Trap Creek ^d	c	April-Sept.	73	
5045	Fourmile Lake net Inflow ^d	c	March-Sept.	8.0	
5140	Hyatt Reservoir net Inflow ^d	c	April-Sept.	6.2	
3770	Illinois River at Kerby ^d	c	March-July	314	
		c	April-Sept.	196	
3425	Little Butte, N. Fk. at Fish Lk. nr. Lake Cr. ^d	c	April-Sept.	16.9	
3415	Little Butte, S. Fork near Lake Creek	c	April-July	42	
3280	Rogue above Prospect	c	April-Sept.	351	
		c	April-July	293	
3320	Rogue, South Fork near Prospect ^d	c	April-Sept.	83	
		c	April-July	71	
3350	Rogue below South Fork	c	April-Sept.	749	
		c	April-July	608	
3590	Rogue at Raygold near Central Point	c	April-Sept.	1004	
		c	April-July	842	
3615	Rogue at Grants Pass	c	April-Sept.	974	
3135	Umpqua, No. blw. Lemolo Res. nr. Toketee Falls ^d	c	April-Sept.	186	

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed. (h) Construction. (i) 7 of 18 sampling points. (j) Partly estimated. (*) 1943-57 Adjusted average.

ROGUE, UMPQUA WATERSHEDS



LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- - - Soil Conservation District Bdry.
- - - County Boundary
- ▲ Forecast Point
- Snow Course

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Althouse	4530	c				
Annie Spring	6018	12/27	42 ^j	11.0 ^j	7.1	19.7*
Beaver Dam Creek	5100	12/30	2 ^j	0.4 ^j	- -	- -
Big Red Mountain	6500	c				
Billie Creek Divide	5300	12/26	12	3.0	2.6	10.4*
Champion	4500	12/31	0	0.0	0.0	10.5*
Cold Springs Camp	6100	c				
Deadwood Junction	4600	12/30	2 ^j	0.4 ^j	- -	- -
Diamond-Crater Summit	5800	12/30	26	8.2	7.3	- -
Diamond Lake	5315	12/30	13	4.6	3.2	10.8*
Eden Valley Summit	2390	f				
Fish Lake	4865	g				
Fourmile Lake	6000	c				
Grayback Peak	6000	c				
Hobart Lake	5010	g				
Howard Prairie	4500	12/30	2 ^j	0.4 ^j	0.0	- -
Hyatt Prairie Reservoir	4900	12/30	0	0.0	0.0	4.2*
Little Red Mountain	6500	c				
North Umpqua near Lake Creek	4215	12/24	4	0.6	2.9	- -
Page Mountain	4045	c				
Park Headquarters	6450	12/27	59	18.1	15.0	24.2*
Red Butte #1	4560	12/30	0	0.0	0.0	- -
Red Butte #2	4000	12/30	0	0.0	0.0	- -
Red Butte #3	3500	12/30	0	0.0	0.0	- -
Red Butte #4	3000	12/30	0	0.0	0.0	- -
Red Butte #5	2500	12/30	0	0.0	0.0	- -
Red Butte #6	2000	12/30	0	0.0	0.0	- -
Rye Spring Spur	5000	g				
Seven Lakes #1	6800	c				
Seven Lakes #2	6200	c				
Silver Burn	3720	12/26	5	0.8	0.0	5.1
Siskiyou Summit	4630	12/31	0	0.0	0.0	3.4
South Fork Canal	3500	12/26	0	0.0	0.0	1.5
Trap Creek	3800	12/24	1	0.1	T	- -
Wagner Butte	6900	c				
Whaleback	5140	c				
Windigo Pass	5800	c				

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

as of

JANUARY 1, 1964



U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK - The 1964 water supply outlook in Klamath Basin is only fair at this early winter date. Snow cover is better than last year although soil moisture is slightly less. Reservoir storage totals only 84 percent of last year and 22 percent below average. Gerber Reservoir is slightly above average for January 1, but October-December inflow has been very low for both Gerber and Clear Lake.

SNOW COVER - Water content of the snowpack is better than last year at this time, although still only 48 percent of the 1943-57 average.

SOIL MOISTURE - Watershed soils are about 15 percent drier this year than last year. The Bly Mountain station indicates moisture conditions about 73 percent of capacity which is about the same as January 1, 1962.

RESERVOIR STORAGE - Storage in Upper Klamath Lake is 293,400 acre feet compared with 364,500 acre feet last year on January 1. The 15 year average (1943-57) is 313,200 acre feet.

Clear Lake has 92,300 acre feet which is about 47 percent of average and last year it held 111,500 acre feet at this time.

Gerber Reservoir is 6 percent above average and holds 35,700 acre feet. Last year it held 27,200 acre feet on January 1.

STREAMFLOW - Inflow to Upper Klamath Lake* was 85 percent of average during December and has been 96 percent for the October-December period.

Gerber and Clear Lake fall inflow has been well below the average for the 1943-57 period.

* Preliminary data from Pacific Power and Light Co., Medford, Oregon, and from U. S. Bureau of Reclamation, Klamath Falls, Oregon.

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley Lost River (Clear Lake) Lost River (Gerber) Lost River (Willow Res.) Sprague River Upper Klamath Lake Williamson River	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	440.2	92.3	111.5	195.3
Gerber	94.0	35.7	27.2	33.8
Upper Klamath Lake	584.0	293.4	364.5	313.2

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

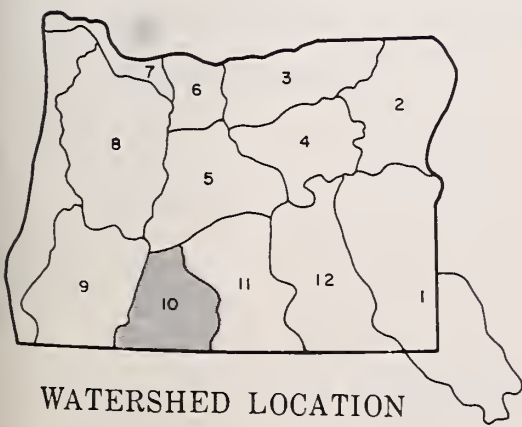
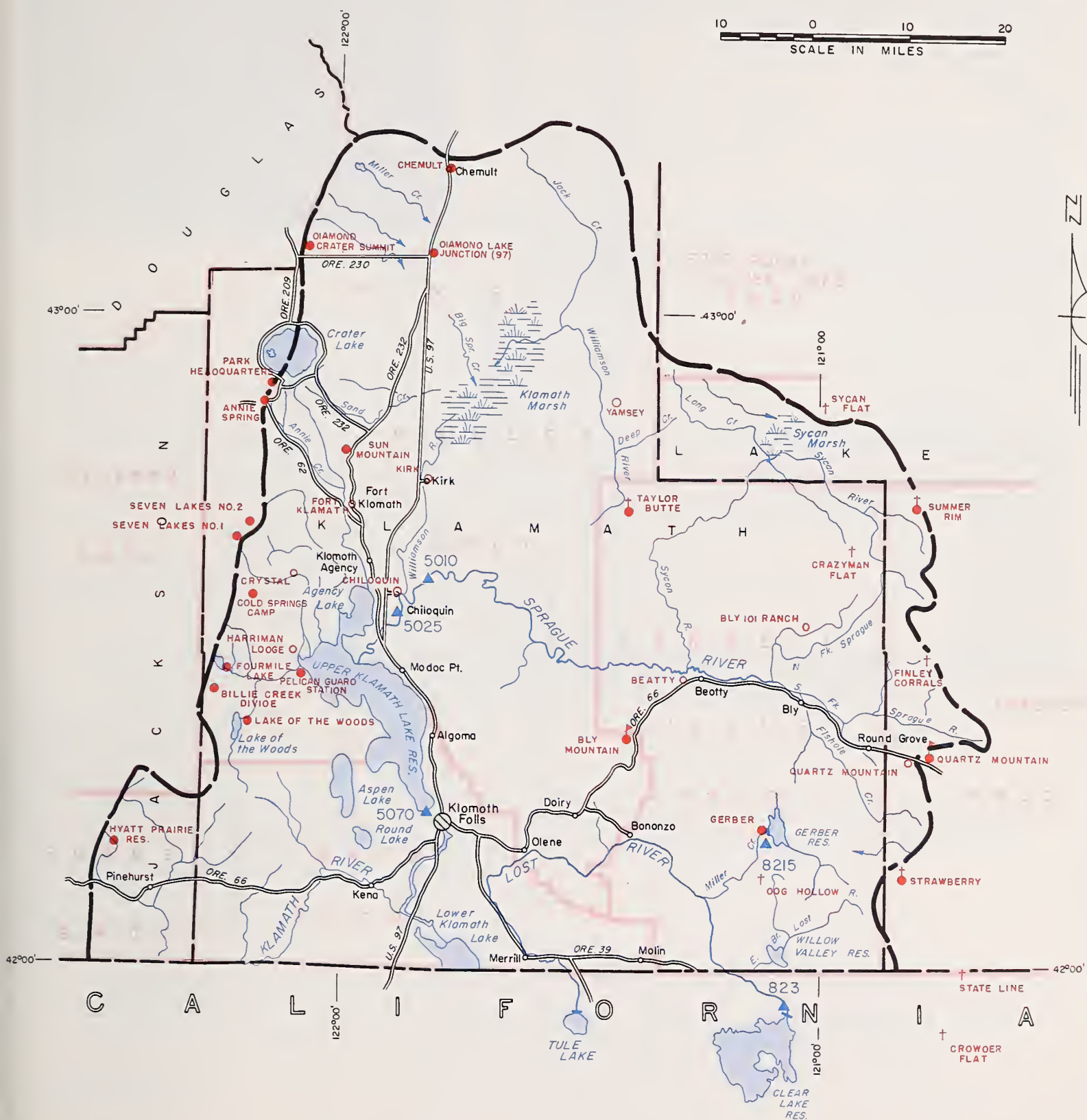
FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
923	Clear Lake Reservoir Inflow ^g	c	Feb.-June	106	
		c	April-Sept.	50	
8215	Gerber Reservoir Inflow ^g	c	Feb.-June	51	
		c	April-Sept.	25	
5010	Sprague near Chiloquin	c	Feb.-Sept.	390	
		c	April-Sept.	296	
5070	Upper Klamath Lake net Inflow ^g	c	Feb.-Sept.	960	
		c	April-Sept.	632	
5025	Williamson below Sprague River ^d	c	April-Sept.	486	
		c	Feb.-Sept.	657	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Bly Mountain	5090	42	14.0	12-30-63	10.2	12.4	10.0

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From PP&L or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated. (j) Nearest current data. (k) Not surveyed. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in the base period.

KLAMATH WATERSHEDS



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- + Aerial Snow Depth Gage
- COPCO Snow Station
- ▶ Soil Moisture Station

Klamath Watersheds

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Annie Spring	6018	12/27	42	11.0	7.1	19.7*
Beatty (PP&L)	4300	12/31	0	0.0	0.0	0.2
Billie Creek Divide	5300	12/26	12	3.0	2.6	10.4*
Bly Mountain	5090	12/30	6	1.9	0.0	- -
Bly 101 Ranch (PP&L)	4800	12/31	0	0.0	0.0	0.8
Chemult	4760	12/29	10	2.8	1.1	5.6*
Chiloquin (PP&L)	4187	12/31	0	0.0	0.0	0.9
Cold Springs Camp	6100	c				
Crazyman Flat	6100	c				
Crowder Flat ^e (Calif.)	5200	c				
Crystal (PP&L)	4200	12/31	4	2.0	T	4.5
Diamond-Crater Summit	5800	12/30	26	8.2	7.3	- -
Diamond Lake Junction (97)	4600	12/30	4	1.2	0.0	- -
Dog Hollow ^e	4900	c				
Finley Corrals ^e	6000	c				
Fort Klamath (PP&L)	4150	12/31	2	0.9	0.0	1.4
Gerber	4850	12/31	0	0.0	0.0	5.6
Hyatt Prairie Reservoir	4900	12/30	0	0.0	0.0	4.2*
Kirk (PP&L)	4533	12/31	6	3.8	T	3.6
Lake of the Woods	4960	12/28	6	2.8	- -	5.3*
Park Headquarters	6450	12/27	59	18.1	15.0	24.2*
Pelican Guard Station	4150	12/26	T	T	0.0	- -
Quartz Mountain	5320	12/30	2	0.8	0.0	3.4*
Quartz Mountain (PP&L)	5504	12/30	3	1.0	T	3.4*
Seven Lakes #1	6800	c				
Seven Lakes #2	6200	c				
State Line ^e (Calif.)	5750	c				
Strawberry	5600	c				
Summer Rim	7200	c				
Sun Mountain	5350	12/27	26	5.5	3.5	12.0
Sycan Flat ^e	5500	c				
Taylor Butte	5100	12/24	T	T	0.0	- -
Tomahawk Ski Bowl (PP&L)	4200	f				
Yamsey (PP&L)	4600	12/31	0	0.0	0.0	1.6

"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

as of

JANUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 irrigation water supply outlook in Lake County is fairly good. Snow cover is better than last year although still very low and soil moisture is less than last year at this time. Reservoir storage is slightly above average and much better than last January 1 in Drew Reservoir.

SNOW COVER

Water content of the Lake County snowpack although still only 31 percent of average, is better than last year when there was no measurable snow on January 1st.

SOIL MOISTURE

Watershed soil moisture averages 67 percent of capacity as measured at Camas Creek and Quartz Mountain stations. This is about 12 percent less than last year at this time and slightly below 2 years ago.

RESERVOIR STORAGE

Drews Reservoir contains 36,800 acre feet compared with 23,500 acre feet last year and 34,800 acre feet for the 1943-57 January 1 average. Cottonwood has 900 a.f. which is only slightly less than the 1,000 acre feet it held last year at this time.

STREAMFLOW

Inflow to Drews Reservoir has been well below the 15 year average for the October-December period.

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River		
Crooked Creek		
Deep Creek		
Dry Creek		
East Side Goose Lake		
Guano Lake		
Honey Creek		
Lakeview Water Users Assn.		
Rock Creek (Hart Mtn.)		
Silver-Buck Creeks		
Summer Lake		
Thomas Creek		
Twentymile Creek		
Warner Lakes		

Forecasts begin in
the February 1
report which will
reach you about
February 10, 1964.

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottonwood	4.1	0.9	1.0	0.2
Drew	63.0	36.8	23.5	34.8

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^c
NO.	NAME				
3840	Chewaucan near Paisley	c	March-June	92	
		c	April-June	82	
3715	Deep above Adel	c	March-June	83	
		c	April-June	71	
3385	Drew Reservoir net Inflow	c	March-July	47	
		c	April-July	34	
3785	Honey near Plush	c	March-June	19.2	
		c	April-June	16.3	
3660	Twentymile near Adel	c	March-June	28	
		c	April-June	20	

SOIL MOISTURE

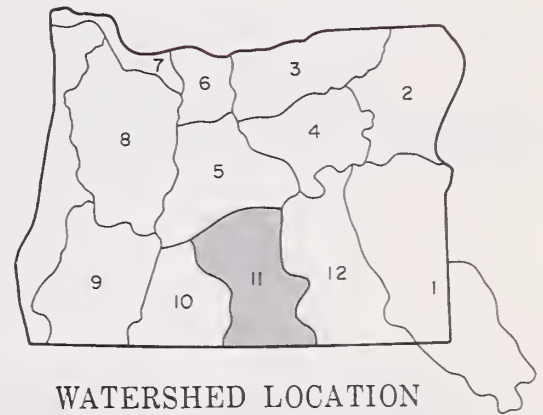
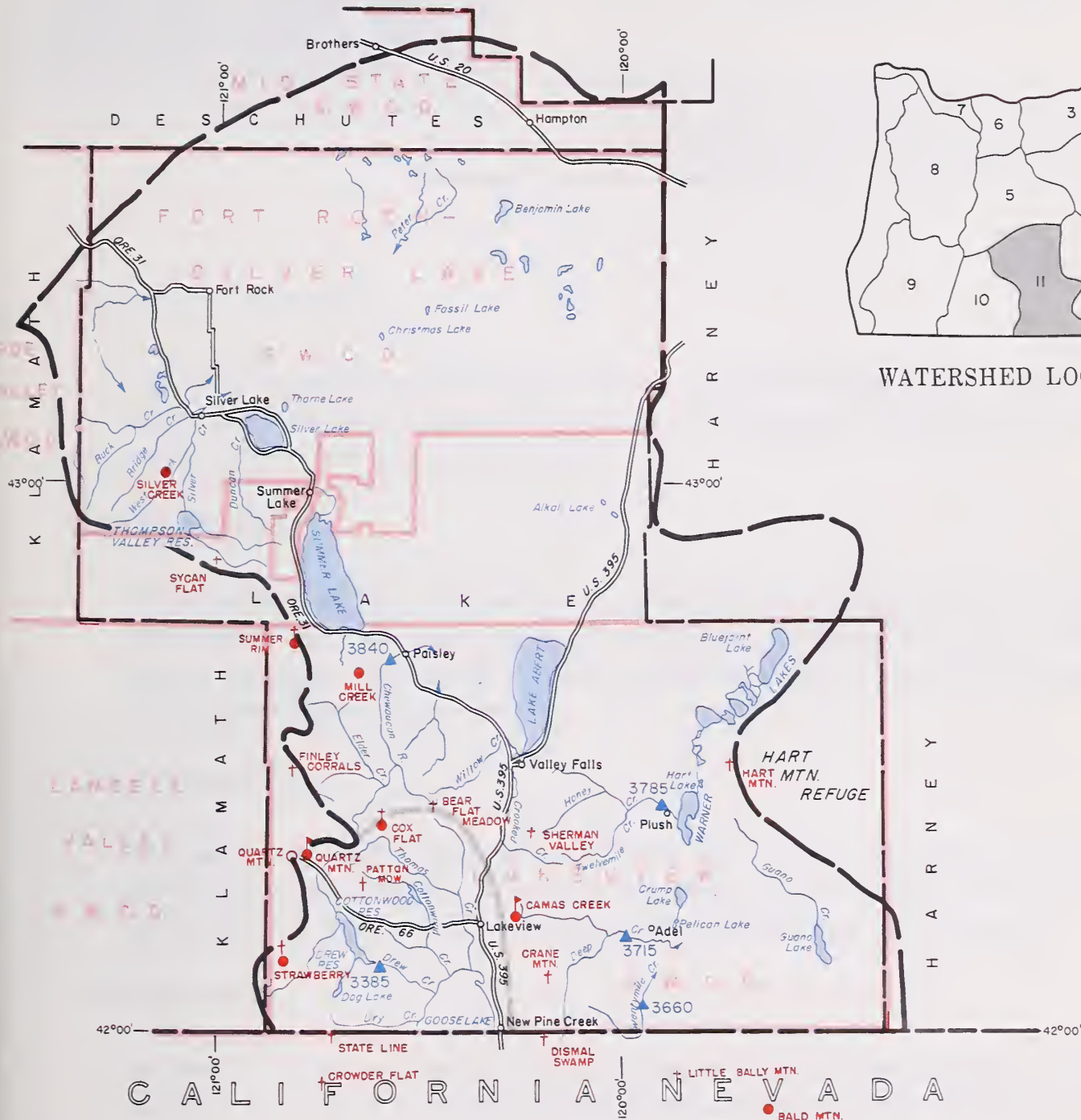
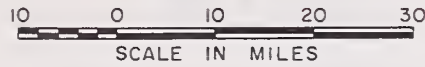
STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Camas Creek	5720	42	14.5	12-27-63	11.9	12.4	--
Quartz Mountain	5320	48	15.3	12-30-63	8.2	11.0	8.9

SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Bald Mountain (Nev.)	6720	c				
Bear Flat Meadow ^e	5900	c				
Camas Creek	5720	12/27	8	1.5	0.0	--
Cox Flat ^e	5750	c				
Crane Mountain ^e	6020	c				
Crowder Flat ^e (Calif.)	5200	c				
Dismal Swamp ^e (Calif.)	7000	c				
Finley Corals ^e	6000	c				
Hart Mountain ^e	6350	c				
Little Bally Mountain ^e (Nev.)	6600	c				
Mill Creek	6200	c				
Patton Meadows ^e	6800	c				
Quartz Mountain (PP&L)	5504	12/30	3	1.0	T	3.4*
Quartz Mountain	5320	12/30	2	0.8	0.0	3.4*
Sherman Valley ^e	6600	c				
Silver Creek	4900	12/31	0	0.0	0.0	--
State Line ^e (Calif.)	5750	c				
Strawberry	5600	c				
Summer Rim	7200	c				
Sycan Flat ^e	5500	c				

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.
(*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period. (g) Nearest current data.

LAKE COUNTY, GOOSE LAKE WATERSHEDS



LEGEND

- Watershed Boundary
- - - Sub-watershed Boundary
- Soil Conservation District Bdry
- - - County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- ▶ Soil Moisture Station



"The Conservation of Water begins with the Snow Survey"

WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

as of
JANUARY 1, 1964



U. S. D. A. SOIL CONSERVATION SERVICE
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

GENERAL OUTLOOK

The 1964 irrigation water supply outlook in Harney Basin is fair. The snowpack is better than last year, but still well below the January 1 average and watershed soils are drier than last year at this time.

SNOW COVER

Water content of the snowpack, as measured in the northern end of Harney Basin, is much better than last year, when it was almost non-existent, but is still only 41 percent of average. Fortunately, two to three months still remain for snow to accumulate and improve the water outlook.

SOIL MOISTURE

Moisture in watershed soils is about 77 percent of total capacity and measurements indicate they are slightly drier than last year and may need as much as 8 inches of water from the snowpack and spring rains to bring them up to capacity.

STREAMFLOW

Streamflow in Harney Basin has been below average for the October-December period as a result of well below normal precipitation during October and December.

Report prepared by
W. T. FROST AND BOB L. WHALEY
U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE
209 S. W. FIFTH AVENUE - PORTLAND 4, OREGON

WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley Cow Creek Donner und Blitzen River Mill-Coffeepot Creeks Rattlesnake Creek Silver Creek Silvies River Soldier-Prather Creek Trout Creek Whitehorse Creek	Forecasts begin in the February 1 report which will reach you about February 10, 1964.	

RESERVOIR STORAGE (1,000 Ac. Ft.) January 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

STREAMFLOW FORECASTS^a(1,000 Ac. Ft.) as of January 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE ^b
NO.	NAME				
3960	Donner und Blitzen near Frenchglen	c	March-June	63	
		c	April-Sept.	67	
4030	Silver near Riley	c	April-July	26	
3935	Silvies near Burns	c	March-June	124	
		c	April-Sept.	107	
4065	Trout near Denio	c	March-July	9.5	
		c	April-Sept.	9.2	

SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION						
Blue Mountain Springs	5900	42	16.9	12-26-63	8.8	12.3	7.6
Fish Creek	7600	48	15.0	c			
Folly Farm	4450	30	12.5	12-19-63	8.3	9.0	9.6
Silvies	6900	48	16.4	c			
Snow Mountain	6300	48	16.7	c			
Starr Ridge	5150	36	10.6	12-27-63	10.1	10.3	6.8
Stinking Water	4800	48	21.9	12-19-63	20.8	20.9	20.7
Willow-Bald	5000	24	6.6	12-30-63	5.0	6.5	3.4

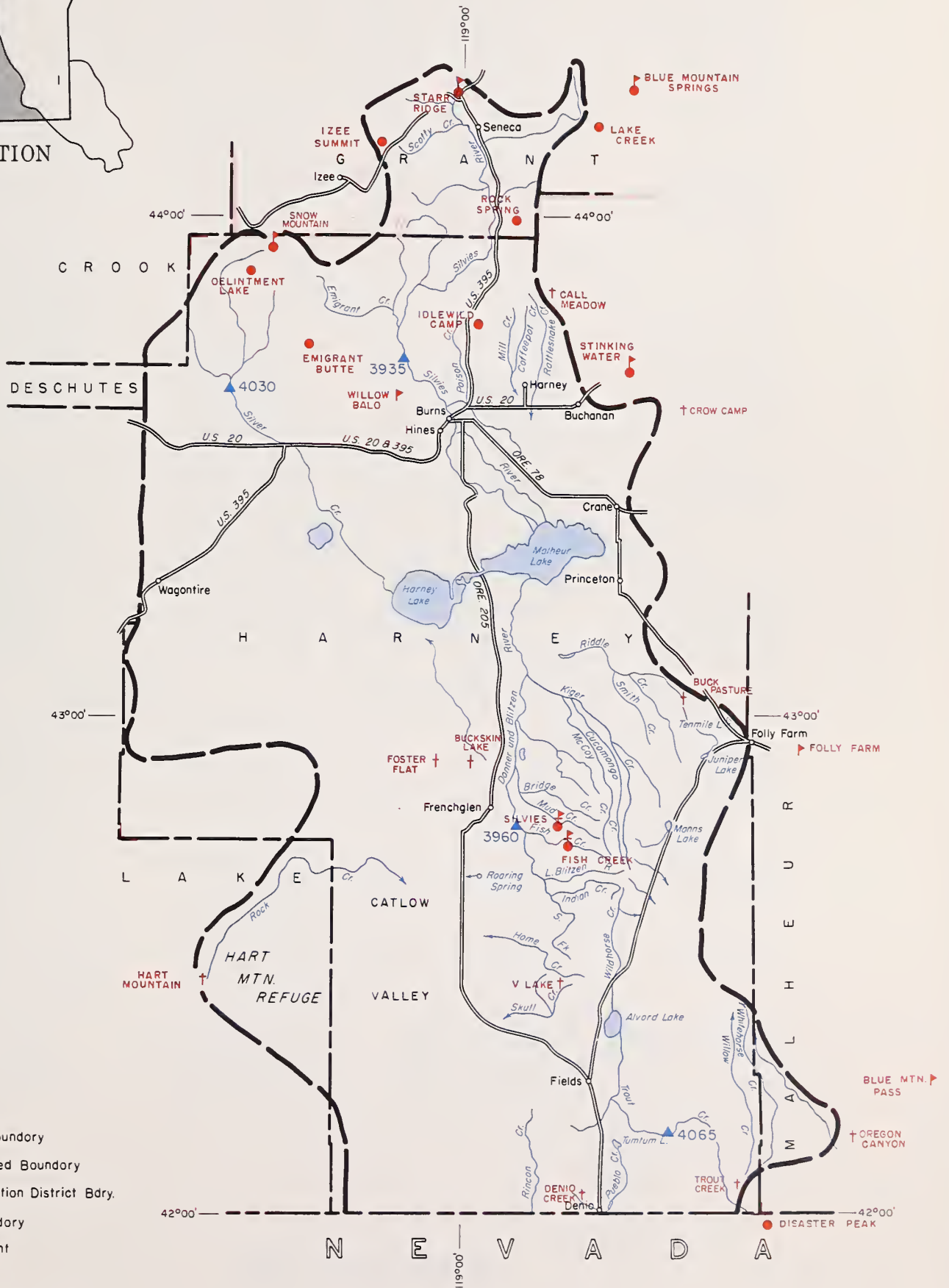
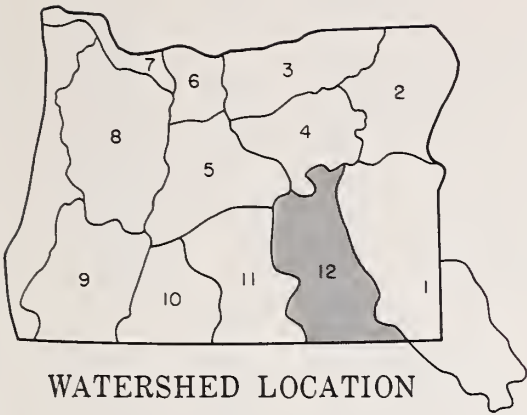
SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Blue Mountain Springs	5900	12/26	16	3.6	3.1	7.0*
Buck Pasture ^e	5700	c				
Buckskin Lake ^e	5200	c				
Call Meadows ^e	5340	c				
Crow Camp ^e	5500	c				
Delintment Lake	5600	c				
Denio Creek ^e	6000	c				
Disaster Peak (Nev.)	6500	c				
Emigrant Butte	5000	c				
Fish Creek ^e	7900	c				
Foster Flat ^e	5020	c				
Hart Mountain ^e	6350	c				
Idlewild Camp	5200	12/30	6	0.8	0.0	2.6*
Izee Summit	5293	12/26	8	1.9	0.0	4.6*
Lake Creek	5120	12/30	17	2.9	0.1	- -
Oregon Canyon ^e	6950	c				
Rock Spring	5100	12/30	8	1.3	0.2	2.7*
Silvies ^e	6900	c				
Snow Mountain	6300	c				
Starr Ridge	5150	12/27	7	1.2	0.0	2.8*
Stinking Water	4800	12/30	5	0.9	T	2.1*
Trout Creek ^e	7800	c				
"V" Lake ^e	6600	c				

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed. (h) Partly estimated. (i) No Fall measurement. (j) Nearest current data. (k) 2 miles south of regular course. (*) 1943-57 Adjusted average. (**) Average for 5 or more years in base period.

HARNEY BASIN WATERSHEDS

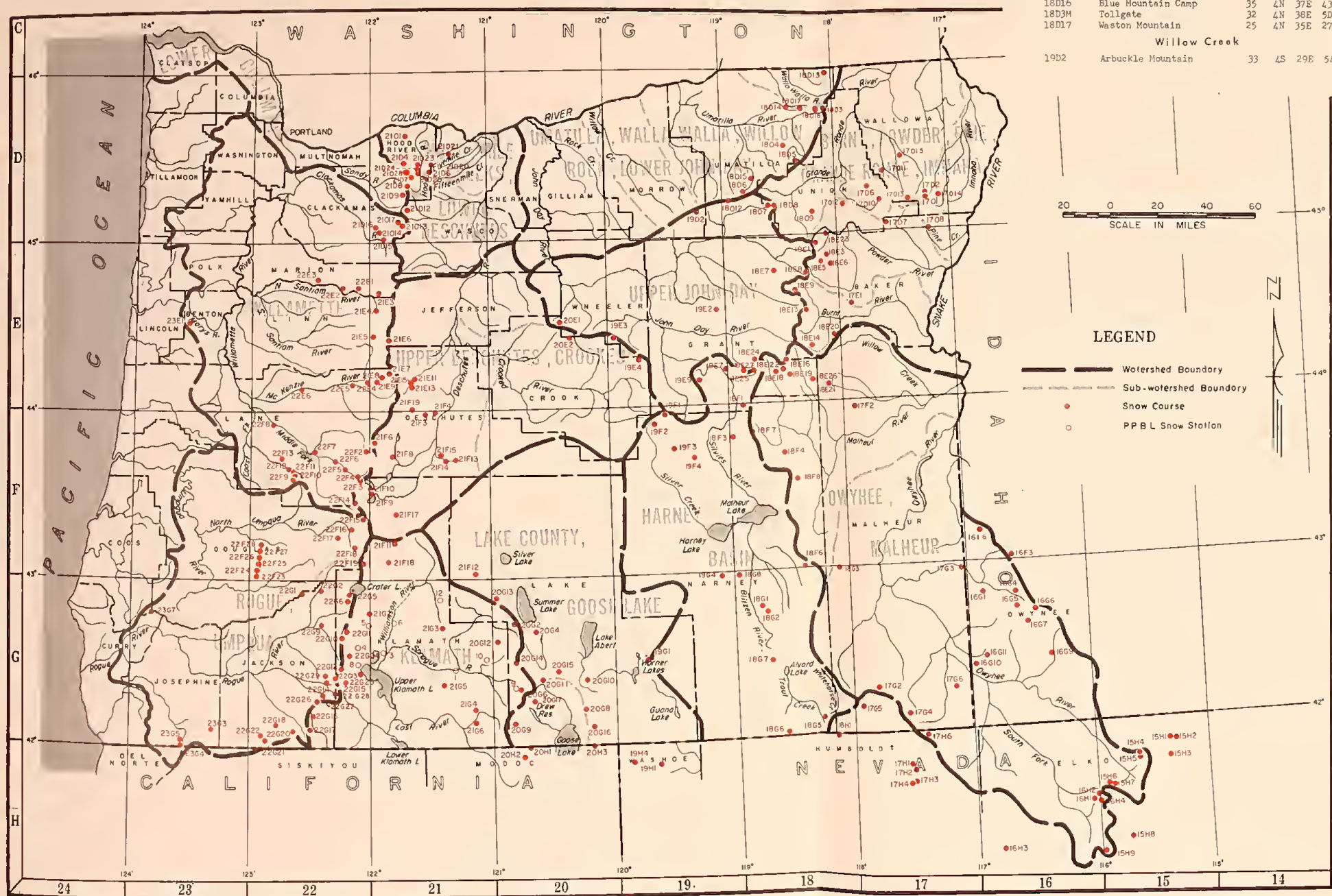
10 0 10 20 30
SCALE IN MILES



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- ▶ Soil Moisture Station

NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.	NUMBER	NAME	LOCATION SEC. TWP. RGE.	ELEV.
OWYHEE, MALHEUR WATERSHEDS (11)				BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS (12)				UPPER JOHN DAY WATERSHEDS (14)				Middle Fork Willamette River				Pacific Power and Light Company's Snow Stations				LAKE COUNTY, GOOSE LAKE WATERSHEDS (111)				Goose Lake			
Owyhee River				Burnt River				Upper John Day River				Mory's River				ROGUE, UMPQUA WATERSHEDS (11)				Rogue River				Abert Lake			
1666	Antelope Ridge	(Ida) 32 8S 1W	5900	17H6a	Quinn Ridge	(Nev) 9 47N 41E	6300	17D10a	Bald Mountain	14 & 15 4S 41E	6700	18E1	Anthony Lake	18 7S 37E	7125	22F3	Cascade Summit	7 23S 6E	4880	2015a	Rear Flat Meadow	27 36S 19E	5900	2015b	Rear Flat Meadow	27 36S 19E	5900
1669a	Sattle Creek	(Ida) 10 11S 1E	5700	16G11a	Red Canyon	(Ida) 32 11S 4W	6500	18D9	Beaver Reservoir	8 5S 37E	5340	18E8	Gold Center	21 9S 36E	5340	22F6	McCredie Springs	26 21S 4E	2120	202M	Canas Creek	5 39S 21E	5720	2011a	Cox Flat	16 17S 18E	5750
15H4M	Bear Creek	(Nev) 31 46N 58E	7800	15H6M	Rodao Flat	(Nev) 36 43N 53E	6800	18D8	County Line	28 4S 34E	4800	18E24a	Indian Cr. Butte	5 14S 33E	6550	22F8	Meridian Dam	13 19S 1W	750	2011b	Grover Flat	(Cal) 30 47N 11E	5200	2012a	Dismal Swamp	(Cal) 31 48N 16E	7000
17G2m	Big Bend	(Nev) 30 45N 56E	6700	15H3A	76 Creek	(Nev) 6 44N 59E	7100	18D6	Lucky Strike	28 3S 32E	5050	19E2M	Beech Creek Summit	4 12S 30E	4800	22F7	Oakridge	16 21S 3E	1310	2016a	Grane Mountain	13 40S 21E	6020	2013m	Patton Meadow	28 38S 18E	6800
17H2	Blue Mtn Pass	(Nev) 4 38S 42E	5290	16G1	South Mountain No.2 (Ida)	35 7S 5W	6340	18D5	Meacham	24 & 25 1S 35E	4300	19E2M	Beech Creek Summit	4 12S 30E	4800	22F5	Railroad Overpass	27 22S 5E	2750	2016b	Grane Mountain	13 40S 21E	6020	2017a	Quartz Mountain	28 38S 18E	6800
17H3	Bucksfin, Lower	(Nev) 25 45N 39E	6700	16G1MA	Silvias	35 32S 32E	6900	18E20	Eldorado Pass	20 14S 38E	4600	18E16M	Blue Mountain Spring	21 15S 35E	5900	22F4	Salt Creek Falls	31 22S 6E	4000	2017b	Quartz Mountain	28 38S 18E	6800	2018a	State Line	(Cal) 21 48N 11E	5750
16G10a	Bucksfin, Upper	(Ida) 11 45N 39E	7200	15H9M	Taylor Canyon	(Nev) 35 39N 53E	6200	18E8	Gold Center	21 9S 36E	5340	18E13M	Blue Mountain Summit	6 12S 36E	5098	22F2	Waldo Lake	15 31S 6E	5500	2019a	Strawberry	4 40S 16K	5600	2015b	Rear Flat Meadow	27 36S 19E	5900
18H2	Disaster Peak	(Nev) 8 47N 34E	6500	15H8	Tremewant Ranch	(Nev) 9 39N 53E	6700	17D11a	Standley	28 2S 42E	7400	19E3M	Derr	14 13S 23E	5670	22F14	Willamette Pass	33 24S 54E	5600	2015c	Rear Flat Meadow	27 36S 19E	5900	2015d	Rear Flat Meadow	27 36S 19E	5900
18G2MA	Fish Creek	4 33S 33E	7900	16G4MA	Triangula	(Ida) 25 7S 3W	5150	18D3M	Tollgate	32 4N 38E	5070	18E27a	East Fork Canyon	15 15S 32E	5700												
18G3M	Folly Farm Summit	(Nev) 33 16N 58E	6800	18G7a	vvn Lake	31 354S 32E	6600	17D15	TV Ridge	11 2S 43E	5670	18E8	Gold Center	21 9S 36E	5340												
15H7	Fox Creek	(Nev) 31 43N 54E	6700	Malheur River				Imnaha River				18E24a	Indian Cr. Butte	5 14S 33E	6550												
15H2	Fry Canyon	(Nev) 31 43N 54E	6700	18E14	Barney Creek	16 14S 36E	5950	17D1	Aneroid Lake No. 1	16 4S 45E	7480	19E9	Isce Summit	28 16S 29E	5293												
15H5	Gold Creek	(Nev) 22 44N 39E	7800	18E16M	Blue Mountain Spring	21 15S 35E	5900	17D2	Aneroid Lake No. 2	16 4S 45E	7000	18E6	Lucky Strike	28 3S 32E	5050												
17H4	Granite Peak	(Ida) 31 8S 2W	5800	18F6a	Buck Pasture	21 29S 35E	5700	17D14	Big Sheep	33 4S 46E	6200	20E1M	Mark's Creek	25 12S 19E	4540												
16G5a	Jack Creek, Lower	(Nev) 18 42N 53E	6800	18E21a	Bully Creek	10 17S 37E	5300	18D6	Goodrich Lake	4 9S 38E	6775	20E2	Ochocho Meadows	21 13S 20E	5200												
16H1M	Jack Creek, Upper	(Nev) 9 42N 53E	7250	18F7a	Call Meadows	29 20S 33E	5340	17D12m	Ladd Summit	5 5S 39E	3730	18E7	Olive Lake	14 9S 334E	6000												
16H4	Jack Peak	(Nev) 28 42N 53E	8420	17F2a	Cottonwood-Indian	10 19S 39E	4320	18E23	Little Alps	10 7S 37E	6200	18D7	Schoolmarm	28 4S 34E	4775												
17G3a	Jordan Valley	9 30S 46E	4390	18E19M	Grane Prairie	24 16S 34E	5375	18D10	Summit Springs	9 6S 37E	6000	19F1M	Snow Mountain	1 19S 26E	6300												
17G6a	Lookout Butte	2 40S 47E	5650	18F8a	Crow Camp	20 14S 38E	4600	17D7	Taylor Green	3 6S 42E	5740	19E7M	Starr Ridge	20 15S 1E	5150												
17G4a	Louise Canyon	27 40S 44E	6440	18E20	Eldorado Pass	20 14S 38E	4600	Pine Creek				18E9	Tipton	34 10S 354E	5100												
17H3	Martin Creek	(Nev) 18 42N 40E	6700	18E26a	Flag Prairie	32 16S 36E	4750	17D8	Schneider Meadows	35 6S 45E	5400	18E25M	Williams Ranch	20 15S 32E	4500												
16H3	Midas	(Nev) 18 42N 40E	7200	18E18	Lake Creek	10 16S 334E	5120	Grande Ronda River				18E7	Unsurveyed														
16G7H	Mud Flat	(Ida) 34 9S 2W	5500	18E22a	Logan Valley	13 16S 334E	5100	17D1	Aneroid Lake No. 1	16 4S 45E	7480	19E1M	Snow Mountain	1 19S 26E	6300												
17G5a	Oregon Canyon	8 40S 40E	6950	18F1	Rock Spring	23 18S 32E	5100	17D2	Aneroid Lake No. 2	16 4S 45E	7300	18E9	Tipton	34 10S 354E	5100												
				18F4M	Stinking Water	33 21S 34E	4800	18E1	Anthony Lake	18 7S 37E	7125	18E25M	Williams Ranch	20 15S 32E	4500												



LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Snow Course
- PPBL Snow Station



21F14	Fire Road	36 21S	11E	5050	23G3	Grayback Peak	9 4OS	5W	6000	20G6M	Quanta Mountain	2 38S	16E	5320	
21E6	Hogg Pass	24 13S	74E	4755	22G17	Hobart Lake	17 43S	3E	5210	20G10a	Shermann Valley	15 37S	21E	6600	
21F4	Hungry Flat	30 18S	11E	4400	22G26	Howard Prairie	32 38S	4E	4500	Summer Lake					
21F6	Irish-Taylor	25 20S	6E	5500	22G16	Hyatt Prairie Reservoir	15 39S	3E	4900	20G2A	Summer Rim	15 33S	16E	7200	
21F7	Moovich	29 25S	25E	4700	22G22	Little Red Mountain	25 40S	24	6500	Silver Lake					
21F10	New Crescent Lake	11 24S	6E	4800	23G5	Paga Mountain	8 41S	7W	4045	21F12	Silver Creek	25 & 26	29S	13E	4900
21F19	New Dutchman Flat #2	21 14S	9E	6400	22G29	Park Headquarters	8 31S	6E	6450	20G13u	Sycun Flat	25	31S	14E	5500
21F13	Paulina Lake	34 21S	12E	6330	22G10	Seven Lakes No. 1	3 31S	5E	6800	Warner Lake					
21F15	Paulina Prairie	28 21S	11E	4285	22G11	Seven Lakes No. 2	26 35S	5E	6200	20G8M	Canna Creek	5 39S	21E	5720	
21F3	Tangent	28 18S	10E	5400	22G2	Silver Burn	33 36S	4E	3720	20G16a	Canna Mountain	13 40S	21E	6700	
21E15	Three Creeks Butte	27 16S	9E	5200	22G20	Siskiyow Summit	17 40S	2E	4630	20H3n	Diamond Swamp	(Cal)	31 48N	22E	7000
21E13	Three Creek Meadows	3 17S	9E	5600	22G29	South Fork Canal	12 33S	3F	3500	19G1a	Hart Mountain	1 36S	25E	6350	
22F2	Waldo Lake	15 21S	6E	5500	22G18	Wagner Butte	1 40S	1W	6900	20G10a	Sherman Valley	15 37S	21E	6600	
22F14	Willamette Pass	33 24S	54E	5600	22G1	Whaleback	3 31S	2E	5140	Guana Lake					
22F15	Windigo Pass	20 25S	6E	5800	Umpquo River					19H1	Bald Mountain	(Nev)	17 45N	21E	6720
Crooked River					22F9	Champion	12 23S	1E	4500	19G1n	Hart Mountain	1 36S	25E	6350	
19E3M	Derr	14 13S	23E	5670	22F18	Diamond Lake	29 27S	6E	5315	19H4n	Little Emily Mt. (Nev)	8 45N	19E	6600	
20E1M	Mark's Creek	25 12S	19E	4540	23G7	Eden Valley Summit	10 32S	10W	2900	HARNEY BASIN WATERSHEDS (112)					
19F1M	Snow Mountain	1 19S	26E	6300	22F16	North Umpqua	19 26S	6E	4215	Silvius River - Silver Creek					
19E4	Tamarack	8 15S	25E	4800	22F23	Red Butte No. 1	36 27S	2W	4560	18F7n	Call Meadows	29 20S	33E	5340	
HOOD, MILE CREEKS LOWER DESCHUTES WATERSHEDS (101)					22F25	Red Butte No. 2	30 27S	1W	4000	19F2	Delinquent Lake	28 19S	26E	5600	
Hood River					22F26	Red Butte No. 3	30 27S	1W	3500	19F3	Emigrant Butte	14 21S	27E	5000	
21D5	Brooks Meadows	2 2S	10E	4300	22F27	Red Butte No. 4	36 27S	1W	3000	18F3	Idolwild Camp	27 20S	31E	5200	
21D25M	Cooper Spur	6 2S	10E	3490	22F28	Red Butte No. 5	20 27S	1W	2500	19E9	Izoo Summit	28 16S	29E	5200	
21D1	Greenpoint Reservoir	28 2N	9E	3400	22F17	Red Butte No. 6	17 27S	1W	2000	18F1	Rock Spring	23 14S	32E	5100	
21D20	Knaball Springs	31 1S	11E	3850	22G1	Trap Creek	1 27S	4E	3800	19F1M	Snow Mountain	1 19S	26E	6300	
21D23	Parkdale	6 1S	10E	1770	22F15	Whalabock	3 31S	2E	5140	19E7M	Starr Ridge	20 15S	31E	5100	
21D8	Phlox Point	6 3S	9E	5600	KLAMATH WATERSHEDS (110)					18F4M	Stinking Water	33 21S	34E	4500	
21D4	Red Hill	15 2S	9E	4400	Klamoth River					19F4m	Willow-Bud	19 22S	29E	5000	
21D9	Still Creek	25 3S	84E	3700	22G6	Annie Spring	19 31S	6E	6018	Donner Und Blitzen River					
21D7	Tilly Jane	20 15S	9E	6000	22G13	Billy Creek Divida	30 36S	5E	5300	18F6a	Buck Pasture	21 29S	35E	5700	
21D21	Ulrich Ranch Junction	28 1S	11E	3350	21G5	Bly Mountain	15 & 22	37S	11E	5090	18G2MA	Fish Creek	4 33S	33E	7900
21D24	Upper Valley	20 1S	10E	2530	21F11	Chemult	21 27S	8E	4760	19G1a	Hart Mountain	1 36S	25E	6350	
21D28	Switchback	28 1S	9E	3255	22G24	Cold Springs Camp	12 35S	5E	6100	18G1MA	Silvius	35 32S	324E	6900	
Mile Creeks - Mosier Creek					20G12a	Crazyman Flat	30 47S	15E	6100	18G7a	"Vn Lake	31 354S	324E	6600	
21D6	Brooks Meadows	2 2S	10E	4300	20H2a	Crowder Flat	(Cal)	30 47N	11E	5200	Trout and Whitehorse Creeks				
21D20	Knaball Springs	31 1S	11E	3850	22F19	Diamond-Crater Summit	34 28S	6E	5800	18G6a	Deno Creek	14 41S	34E	6000	
21D21	Ulrich Ranch Junction	28 1S	11E	3350	21F18	Diamond Lake Jct. (97)	1 29S	7E	4600	18H1	Dinosaur Fork	(Nev)	8 47N	34E	6500
Lower Deschutes River					21G6a	Dog Hollow	11 36S	16E	6000	17G5a	Oregon Canyon	9 40S	40E	6950	
21D12	Clear Lake	29 4S	9E	3500	22G12a	Finlay Corral	9 36S	5E	6000	18G5a	Trout Creek	10 41S	38E	7800	
21E6	Hogg Pass	24 13S	74E	4755	21G4	Fourmile Lake	12 38S	13E	4850	Horney Lake					
LOWER COLUMBIA WATERSHEDS (7)					22G16	Hyatt Prairie Reservoir	15 39S	3E	4900	18G8	Buckskin Lake	7 30S	30E	5200	
Sandy River					22G26	Howard Prairie	32 38S	4E	4500	19G4	Forster Flat	15 30S	29E	5020	
21D8	Phlox Point	6 3S	9E	5600	22G15	Lake of the Woods	11 37S	5E	4960	LEGEHO					
21D9	Still Creek	25 3S	84E	3700	22G5	Park Headquarters	8 31S	6E	6450	19D7	SHOW COURSE ONLY				
WILLAMETTE WATERSHEDS (18)					22G25	Pelican Guard Station	9 36S	6E	4150	19D7M	SHOW COURSE AND SOIL MOISTURE				
Clockamas River					20G6M	Quartz Mountain	2 36S	16E	5320	19D2MA	SHOW COURSE, SOIL MOISTURE AND ARIAL MARKER				
21D15	Big Bottom	25 6S	7E	2118	22G10	Seven Lakes No. 1	3 34S	5E	6800	19D7A	SHOW COURSE AND ARIAL MARKER				
21D13	Clackamas Lake	35 5S	84E	3400	22G11	Seven Lakes No. 2	26 33S	5E	6200	19D2+	SOIL MOISTURE ONLY				
21D12	Clear Lake	29 4S	9E	3500	20H1a	State Line	21 48N	11E	5750	19D2+	AERIAL MARKER ONLY				
21D16	Lake Harriet	4 6S	7E	2045	20G9A	Strawberry	15 33S	16E	7200						
21D14	Peavine Ridge	14 & 15	6S	7E	20G2A	Summer Rim	22 32S	74E	5350						
21D8	Phlox Point	6 3S	9E	5600	21G2	Sun Mountain	25 31S	14E	5500						
21D9	Still Creek	25 3S	84E	3700	20G13a	Sycun Flat	16 33S	11E	5100						
21D17	Timothy Lake	26 5S	8E	3295	21G3	Taylor Butte	25 31S	11E	5100						
Santiam River															
22E1	Detroit (town)	1 10S	5E	1610											
22E2	Detroit Dam	7 10S	5E	1580											
21E6	Hogg Pass	24 13S	74E	4755											
21E4	Marion Forks	28 11S	7E	2730											
22E3	Mill City	29 9S	3E	826											
21E5	Santiam Junction	14 13S	7E	3990											
21E3	Whitewater Bridge	28 10S	7E	2175											
McKenzie River															
21E8	Dead Horse Grade	13 16S	7E	3800											
22E4	Lost Creek Ranch	24 16S	6E	1956											
21E7	McKenzie	35 15S	74E	4800											
22E5	McKenzie Bridge	13 16S	5E	1372											
22E6	Vida	28 16S	2E	800											
21E9	White Branch Slide	15 16S	7E	2800											

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

COUNTY

- Douglas County Water Resources Survey

FEDERAL

- Department of Agriculture
 - Cooperative Extension Service
 - Forest Service
 - Soil Conservation Service
- Department of Commerce
 - Weather Bureau
- Department of the Interior
 - Bonneville Power Administration
 - Bureau of Land Management
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
 - National Park Service
- Department of National Defense
 - Corps of Army Engineers

PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific Utilities Company

MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale-Oregon Irrigation District
- Warm Springs Irrigation District

PRIVATE ORGANIZATIONS

- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
ROSS BLDG., 209 S.W. 5TH AVE.
PORTLAND 4, OREGON

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U. S. DEPARTMENT OF AGRICULTURE

FIRST CLASS MAIL

FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS

Furnishes the basic data
necessary for forecasting
water supply for irrigation,
domestic and municipal water
supply, hydro-electric power
generation, navigation,
mining and industry

*"The Conservation of Water begins
with the Snow Survey"*